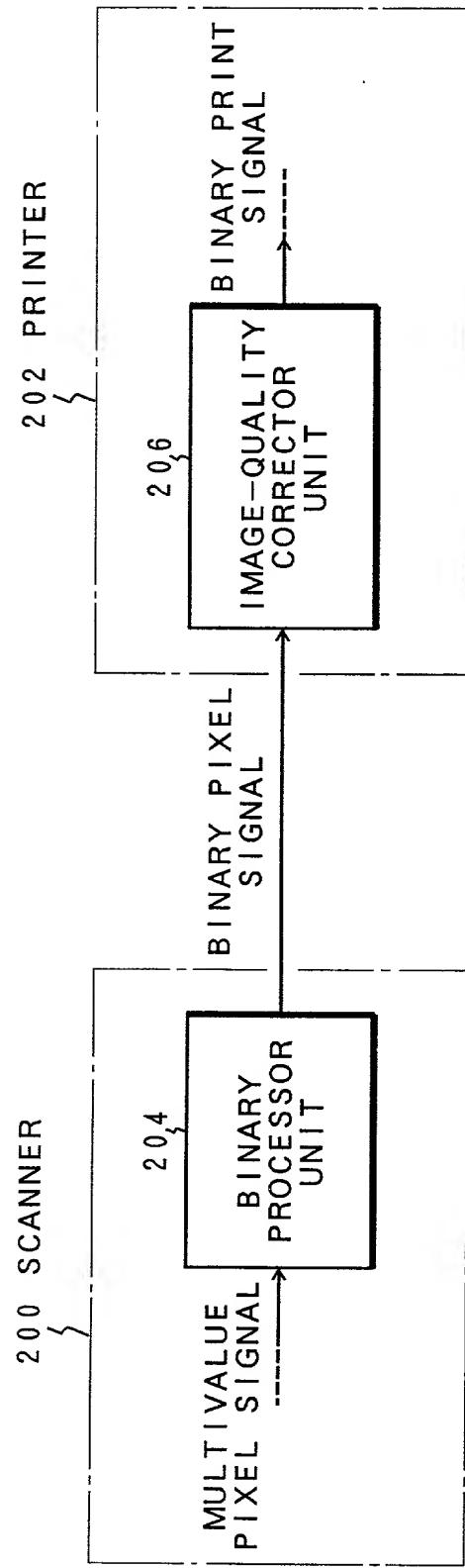
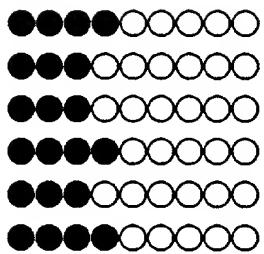


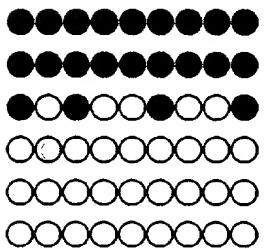
FIG. 1 PRIOR ART



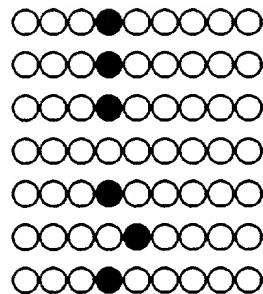
PRIOR ART
FIG. 2A



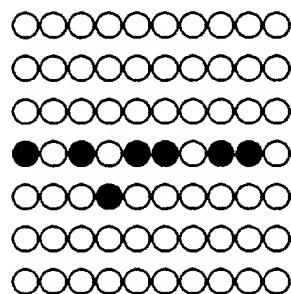
PRIOR ART
FIG. 2B



PRIOR ART
FIG. 3A



PRIOR ART
FIG. 3B



PRIOR ART
FIG. 3C

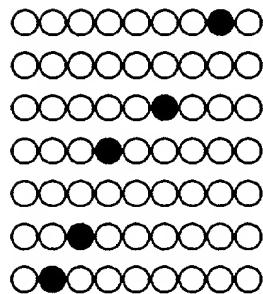


FIG. 4A PRIOR ART

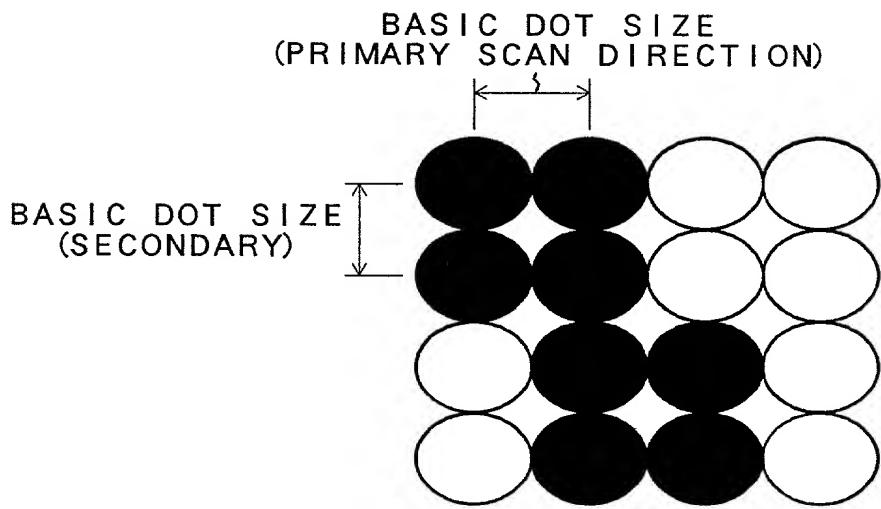
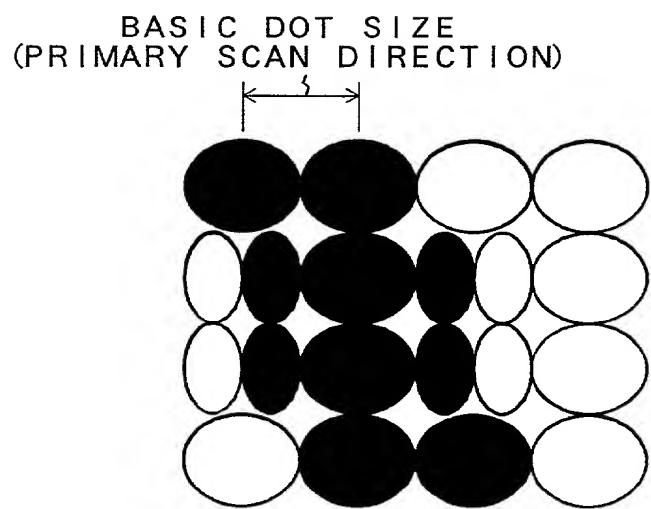
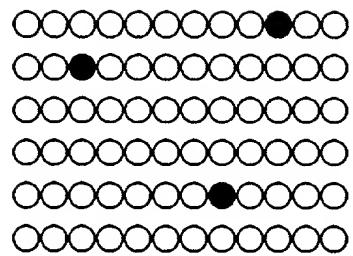


FIG. 4B PRIOR ART



PRIOR ART
FIG. 5A



PRIOR ART
FIG. 5B

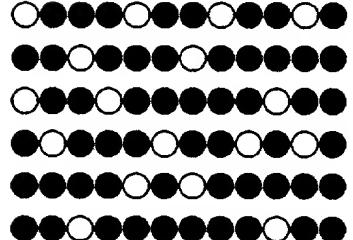


FIG. 6

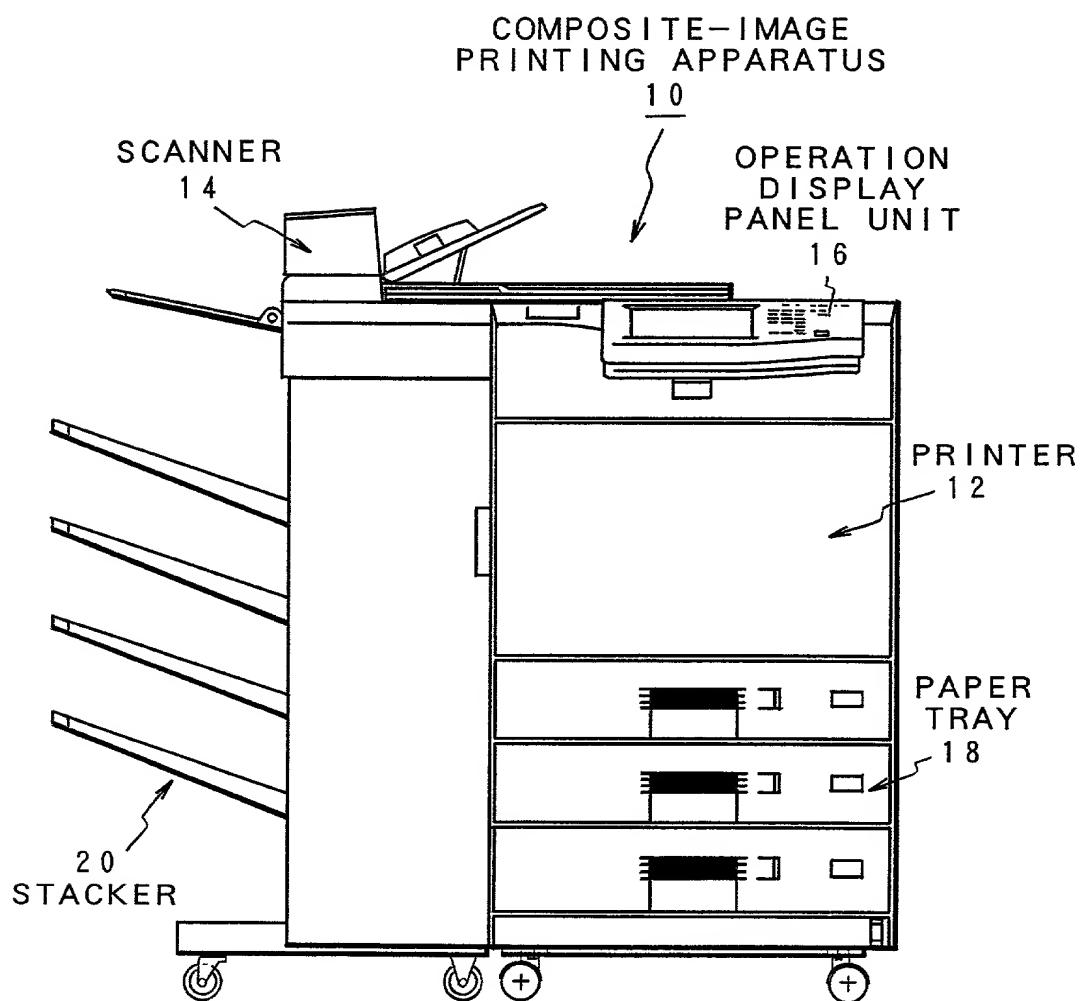


FIG. 7

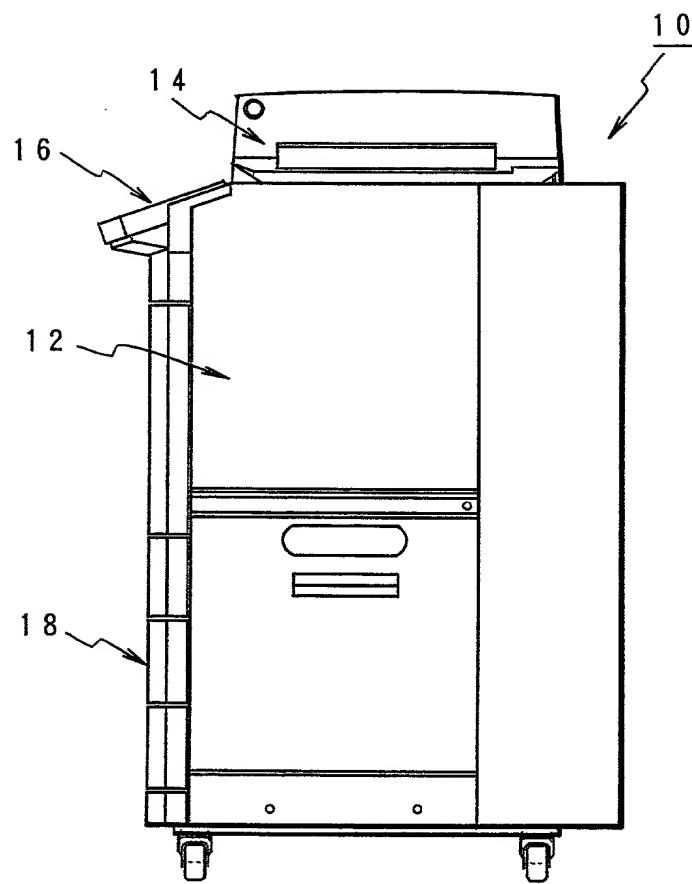


FIG. 8

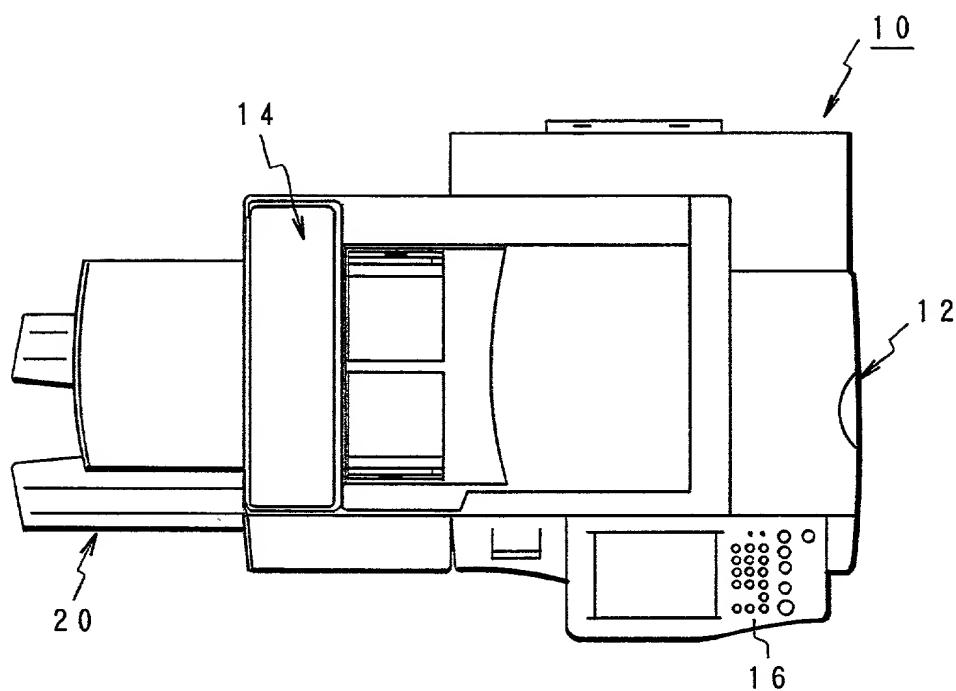


FIG. 9

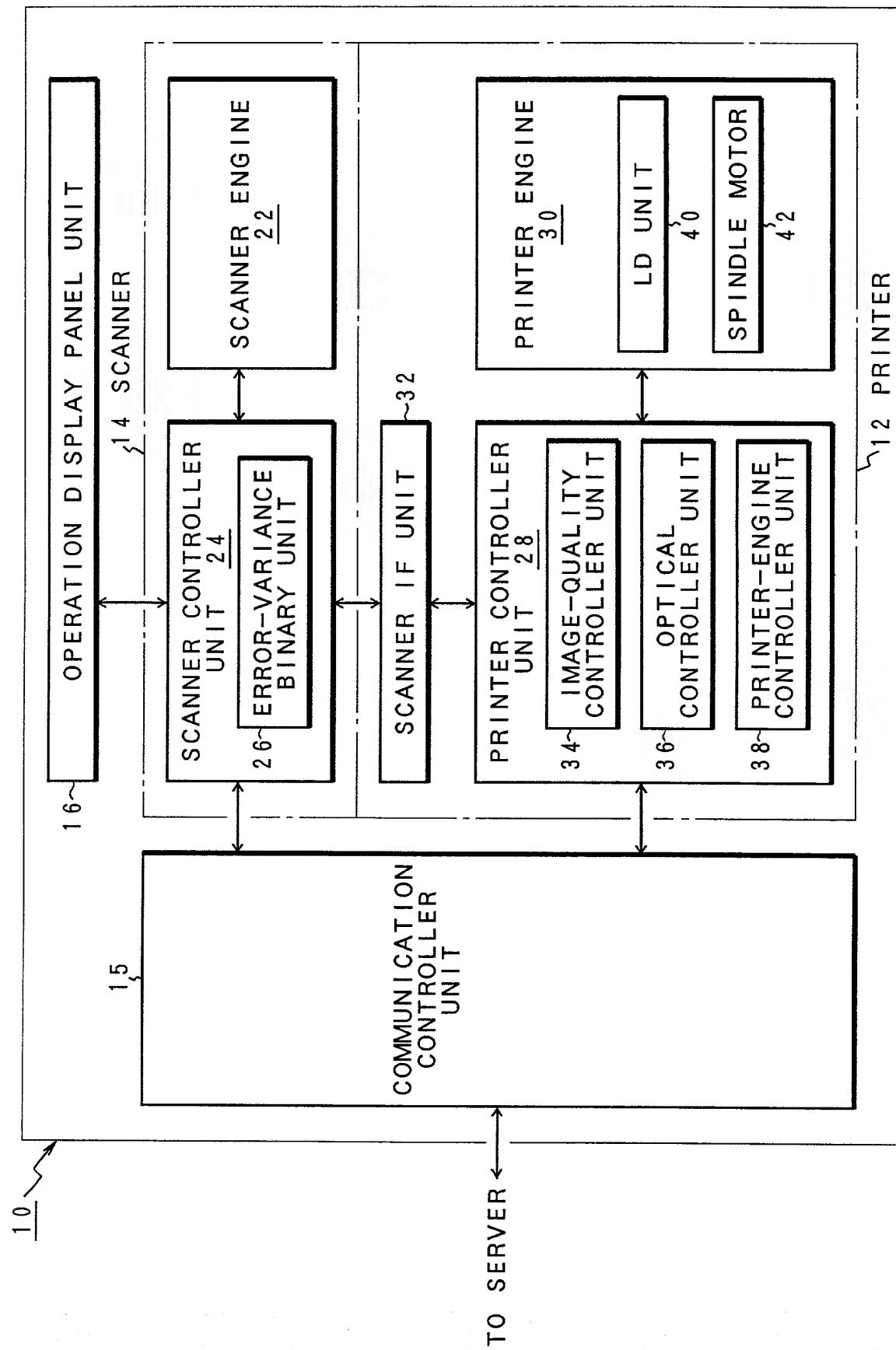
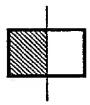


FIG. 10A



50 DATA LINE MEMORY

m^{th} LINE	$n-2^{th}$ DOT	$n-1^{th}$ DOT	n^{th} DOT	$n+1^{th}$ DOT	$n+2^{th}$ DOT
$m+1^{th}$ LINE	$D_{m+1, n-2}$	$D_{m+1, n-1}$	$D_{m+1, n}$	$D_{m+1, n+1}$	$D_{m+1, n+2}$
$m+2^{th}$ LINE	$D_{m+2, n-2}$	$D_{m+2, n-1}$	$D_{m+2, n}$	$D_{m+2, n+1}$	$D_{m+2, n+2}$

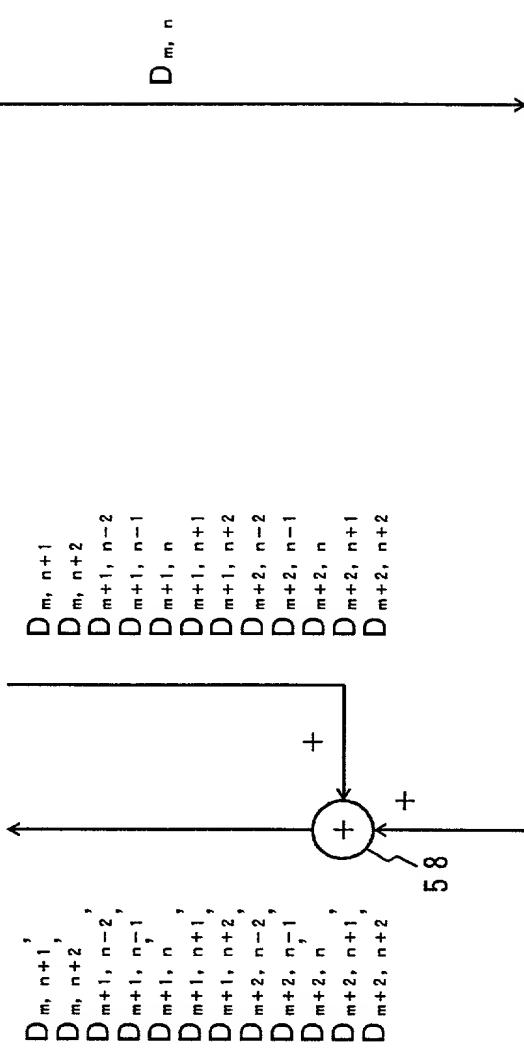




FIG. 10B

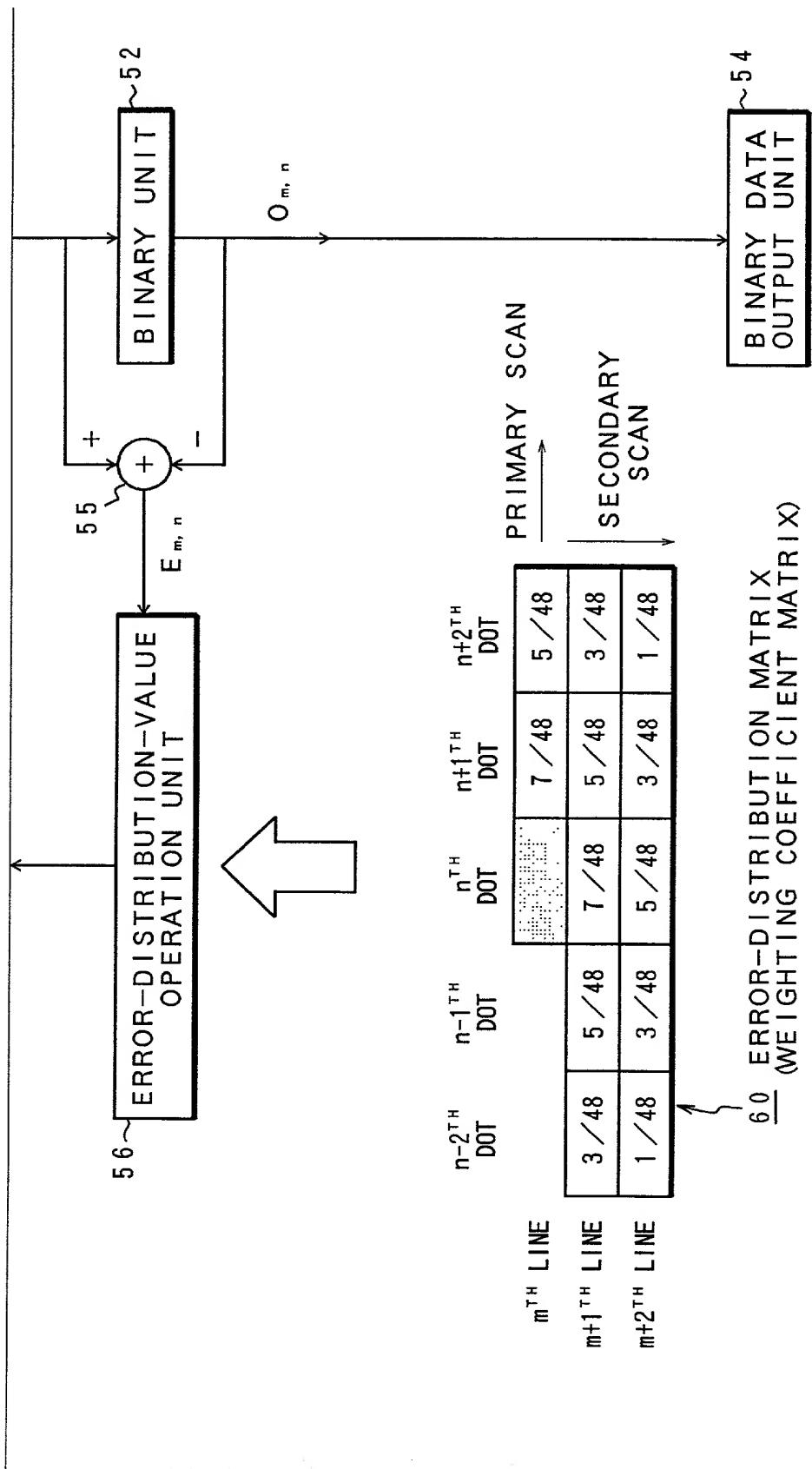


FIG. 11A

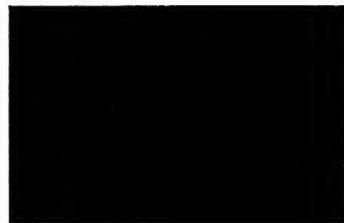


FIG. 11B

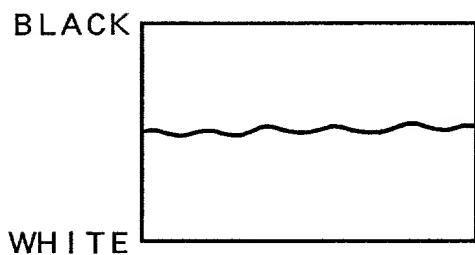


FIG. 11C

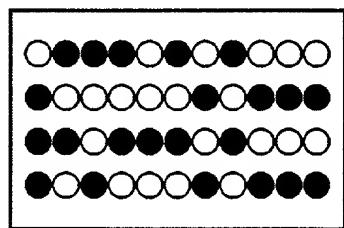


FIG. 12A

ORIGINAL PICTURE
IMAGE

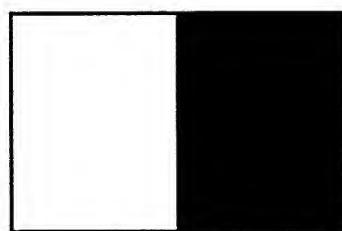


FIG. 12B

MULTI VALUE DENSITY
LEVEL

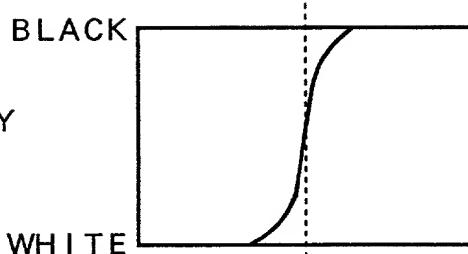


FIG. 12C

OUTPUT IMAGE

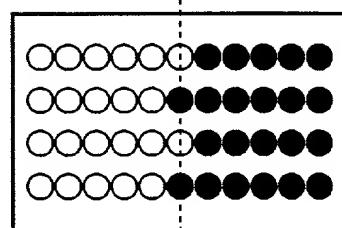


FIG. 13A

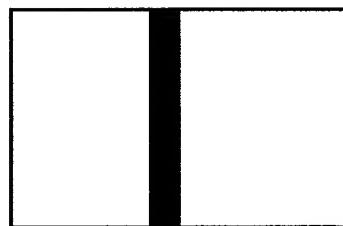


FIG. 13B

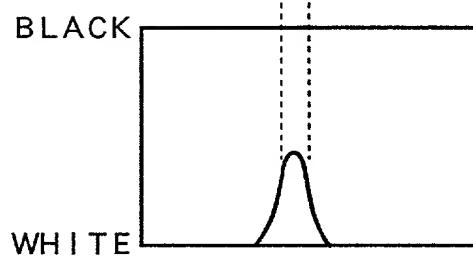


FIG. 13C

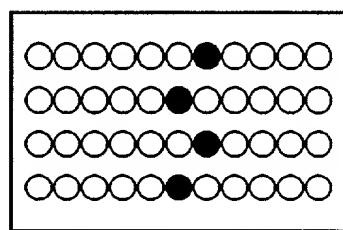


FIG. 14

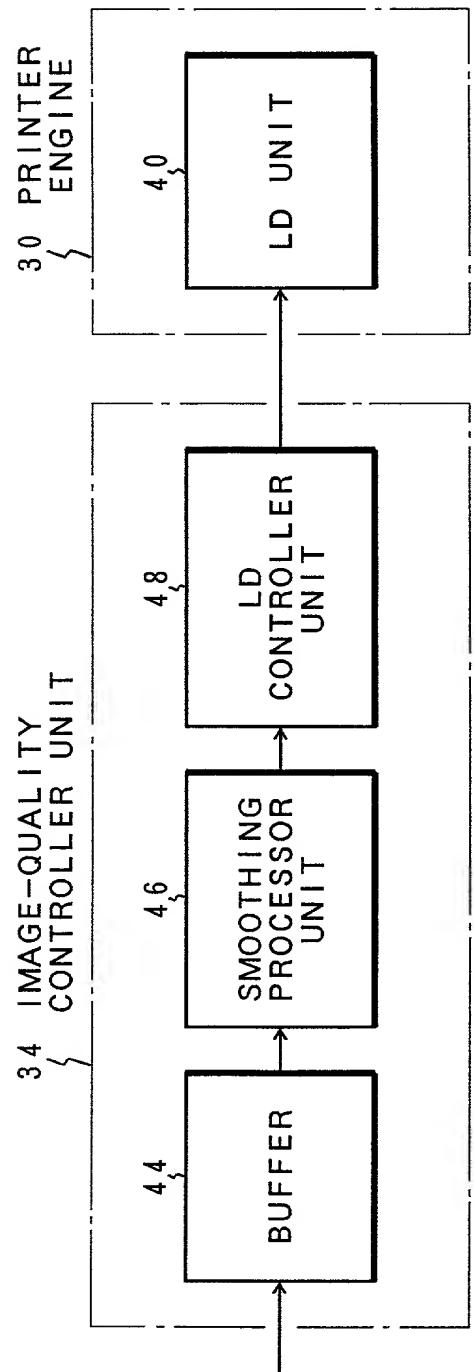


FIG. 15

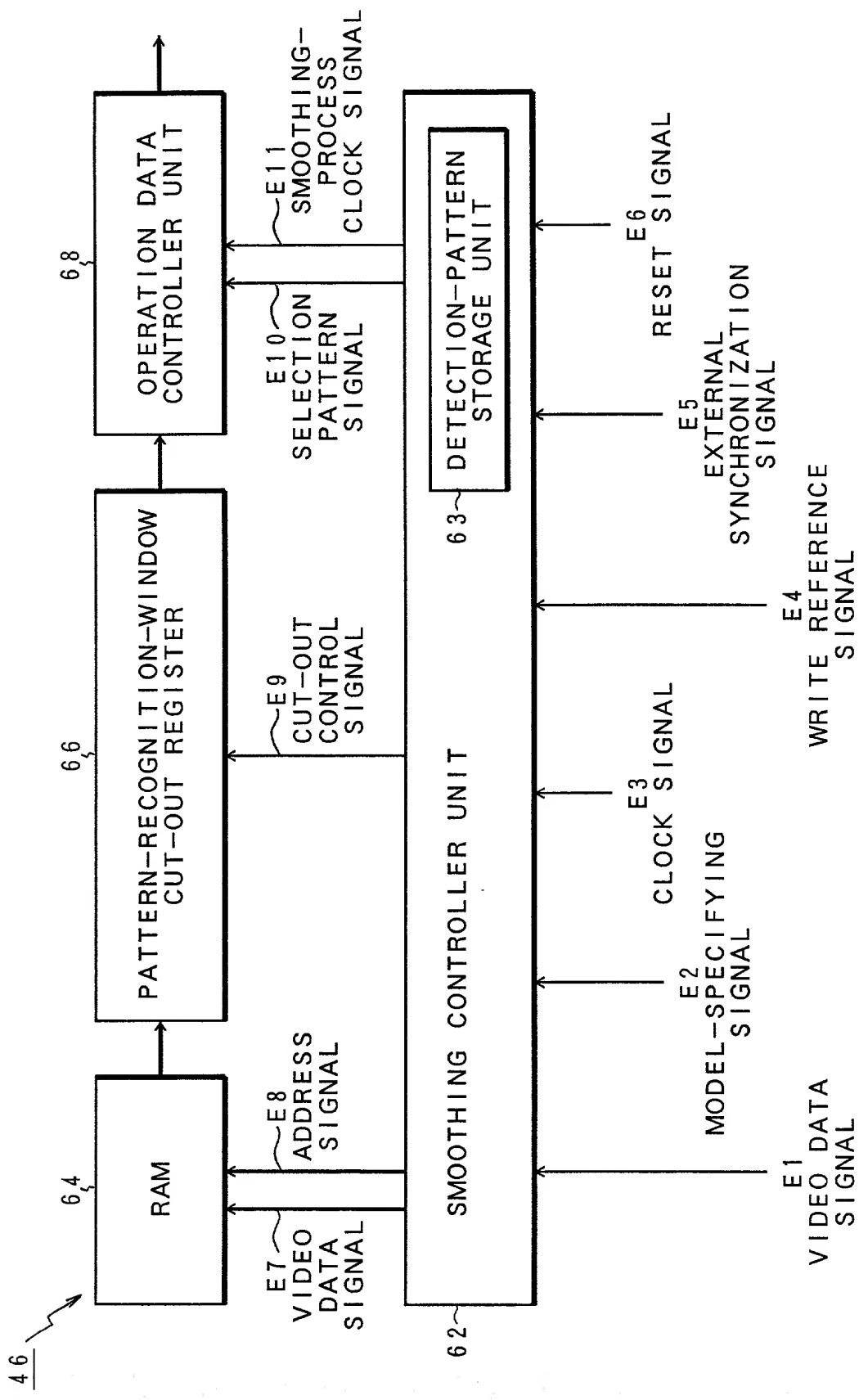


FIG. 16

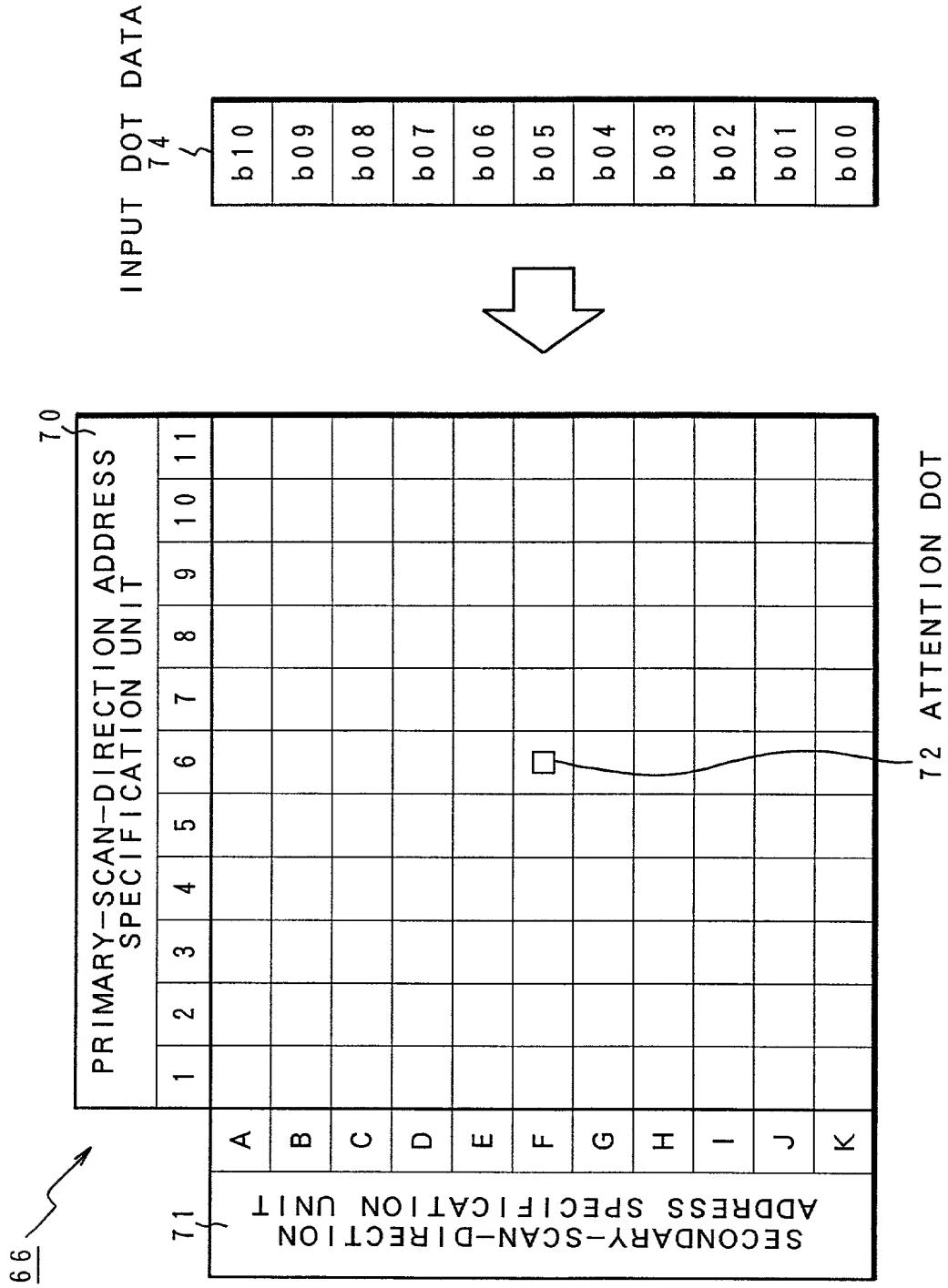


FIG. 17A

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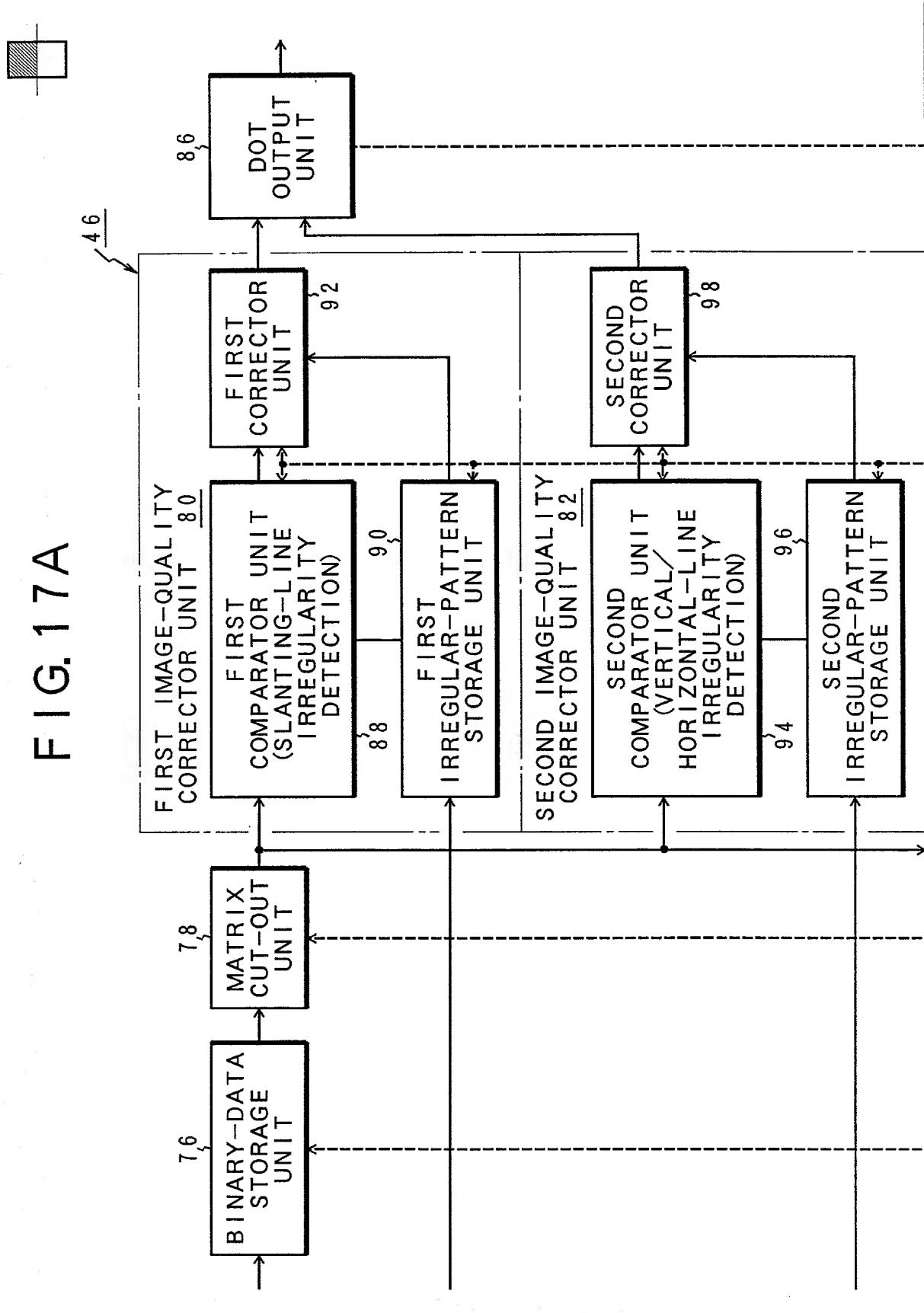


FIG. 17B

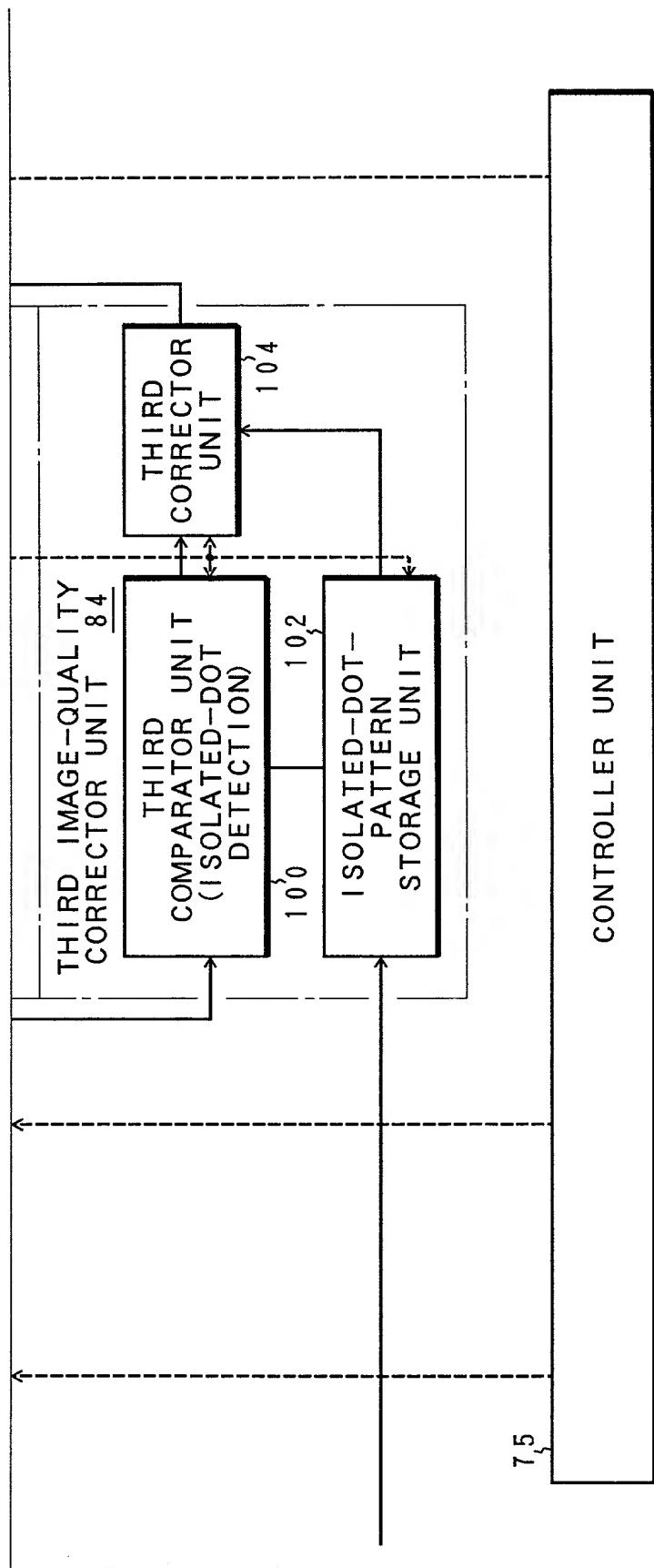
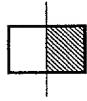


FIG. 18A

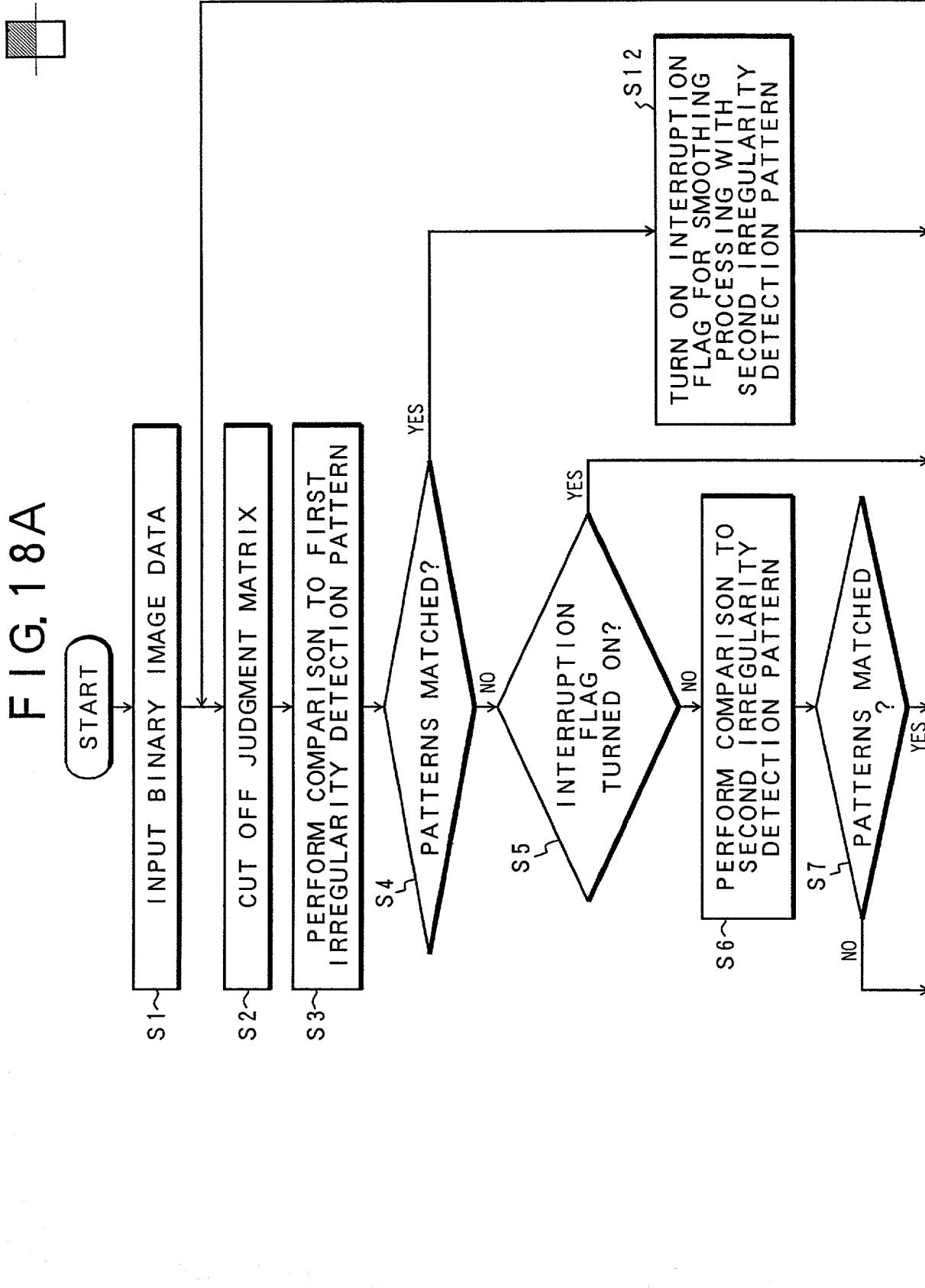


FIG. 18B

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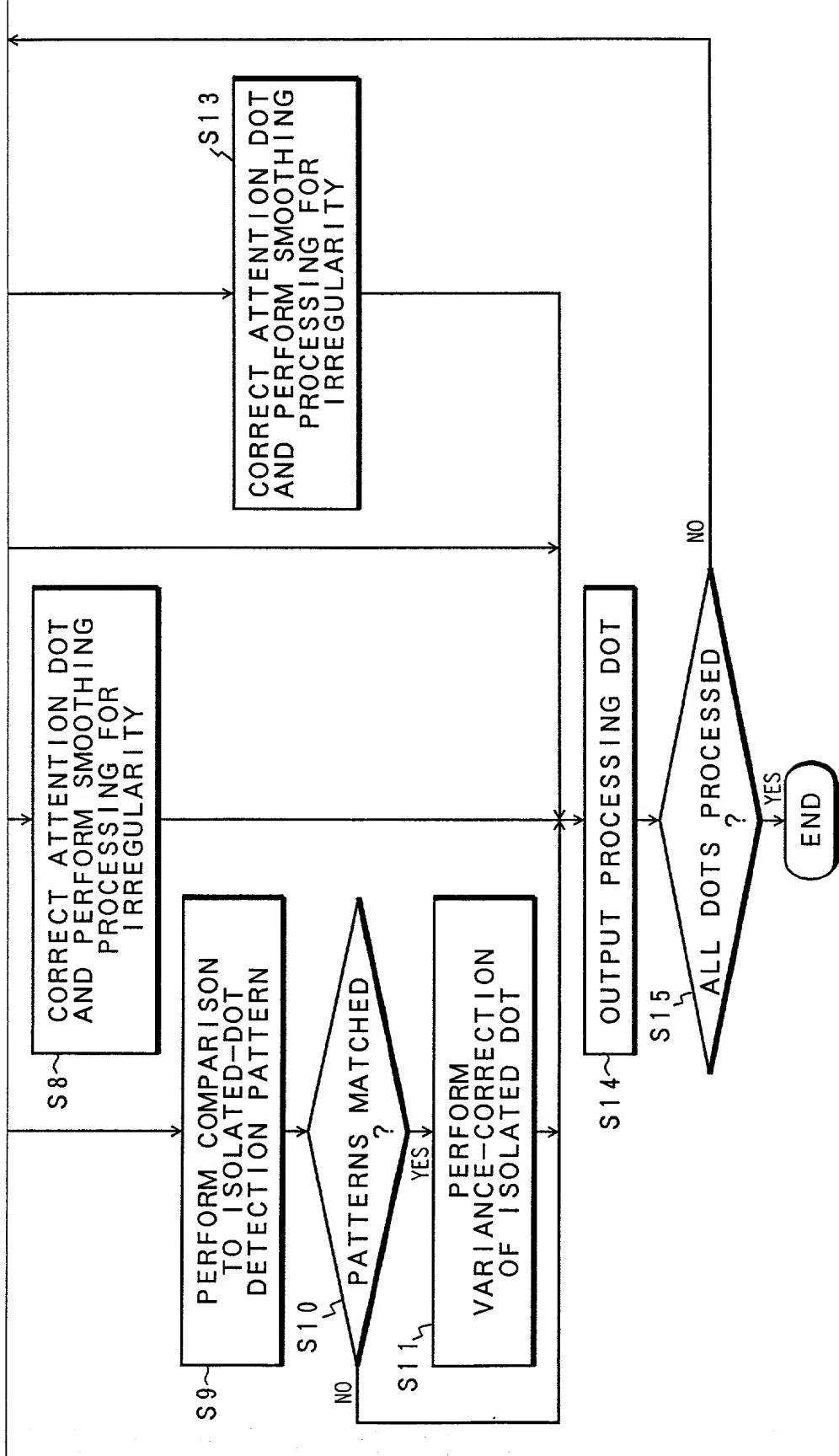


FIG. 19

STORAGE UNITS	PATTERN CONTENTS	BINARY METHODS
FIRST IRREGULAR-PATTERN STORAGE UNIT	SLANTING-LINE IRREGULARITY DETECTION PATTERN	SIMPLE BINARY/DITHER
SECOND IRREGULAR-PATTERN STORAGE UNIT	VERTICAL/HORIZONTAL-LINE IRREGULARITY DETECTION PATTERN	ERROR VARIANCE
ISOLATED-DOT-PATTERN STORAGE UNIT	THIN-LINE PATCHY DETECTION PATTERN	ERROR VARIANCE
	ISOLATED-DOT DETECTION PATTERN	ERROR VARIANCE

FIG. 20

PAT 253									
①②③④⑤⑥⑦⑧⑨⑩⑪									
B	●	○	○	○	○	○	○	○	○
C	●	●	○	○	○	○	○	○	○
D	●	●	●	○	○	○	○	○	○
E	●	●	●	●	○	○	○	○	○
F	●	●	●	●	●	○	○	○	○
G	●	●	●	●	●	●	○	○	○
H	●	●	●	●	●	●	●	○	○
I	●	●	●	●	●	●	●	●	○
J	●	●	●	●	●	●	●	●	●

PAT 254									
①②③④⑤⑥⑦⑧⑨⑩⑪									
B	●	○	○	○	○	○	○	○	○
C	●	●	○	○	○	○	○	○	○
D	●	●	●	○	○	○	○	○	○
E	●	●	●	●	○	○	○	○	○
F	●	●	●	●	●	○	○	○	○
G	●	●	●	●	●	●	○	○	○
H	●	●	●	●	●	●	●	○	○
I	●	●	●	●	●	●	●	●	○
J	●	●	●	●	●	●	●	●	●

PAT 257									
①②③④⑤⑥⑦⑧⑨⑩⑪									
B	●	○	○	○	○	○	○	○	○
C	●	●	○	○	○	○	○	○	○
D	●	●	●	○	○	○	○	○	○
E	●	●	●	●	○	○	○	○	○
F	●	●	●	●	●	○	○	○	○
G	●	●	●	●	●	●	○	○	○
H	●	●	●	●	●	●	●	○	○
I	●	●	●	●	●	●	●	●	○
J	●	●	●	●	●	●	●	●	●

PAT 258									
①②③④⑤⑥⑦⑧⑨⑩⑪									
B	●	○	○	○	○	○	○	○	○
C	●	●	○	○	○	○	○	○	○
D	●	●	●	○	○	○	○	○	○
E	●	●	●	●	○	○	○	○	○
F	●	●	●	●	●	○	○	○	○
G	●	●	●	●	●	●	○	○	○
H	●	●	●	●	●	●	●	○	○
I	●	●	●	●	●	●	●	●	○
J	●	●	●	●	●	●	●	●	●

FIG. 21

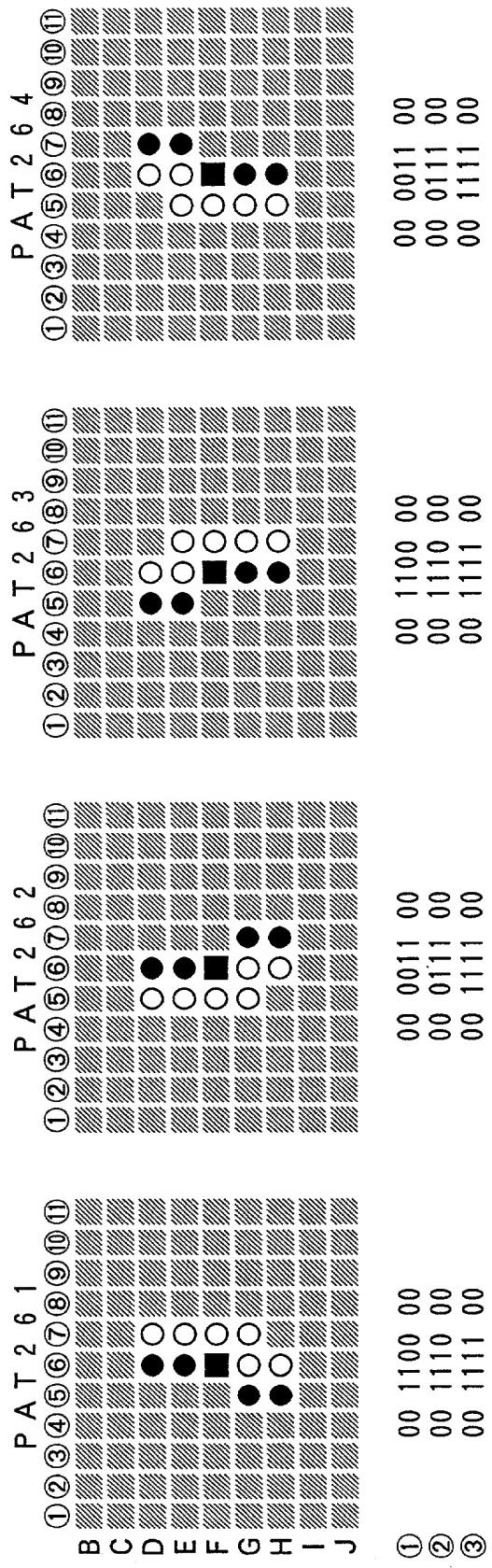


FIG. 22A

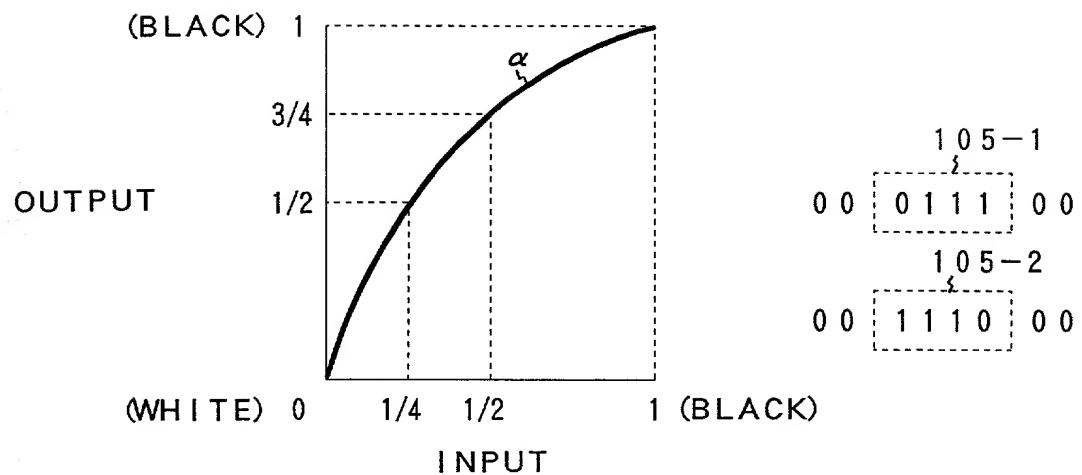


FIG. 22B

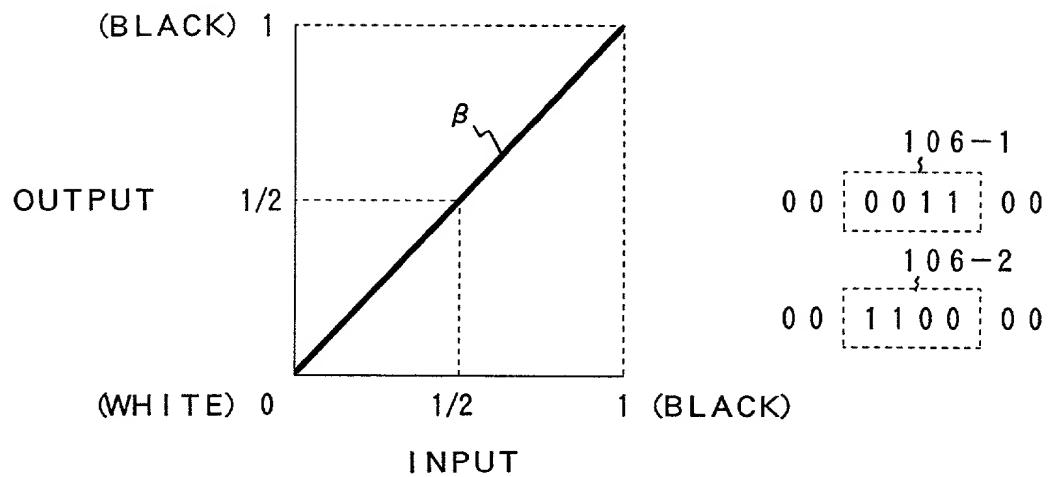


FIG. 22C

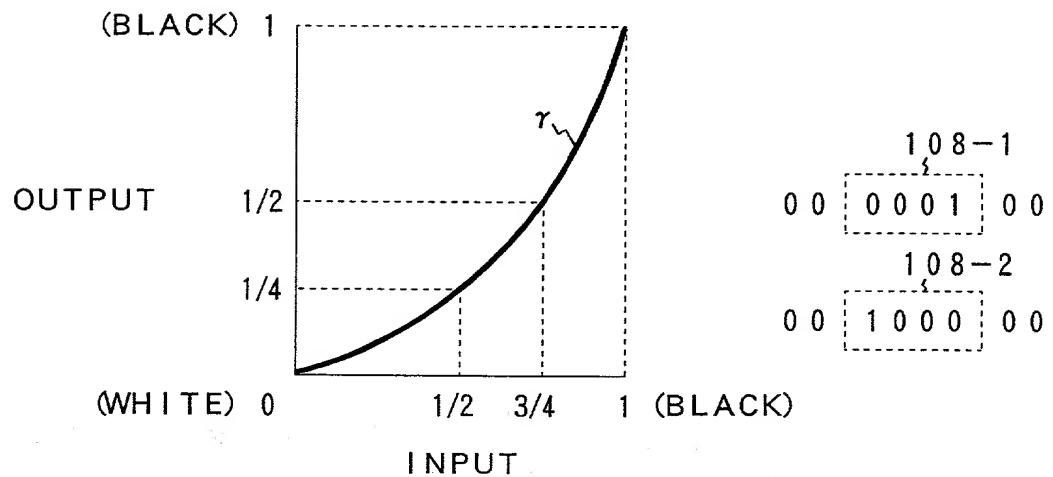


FIG. 23

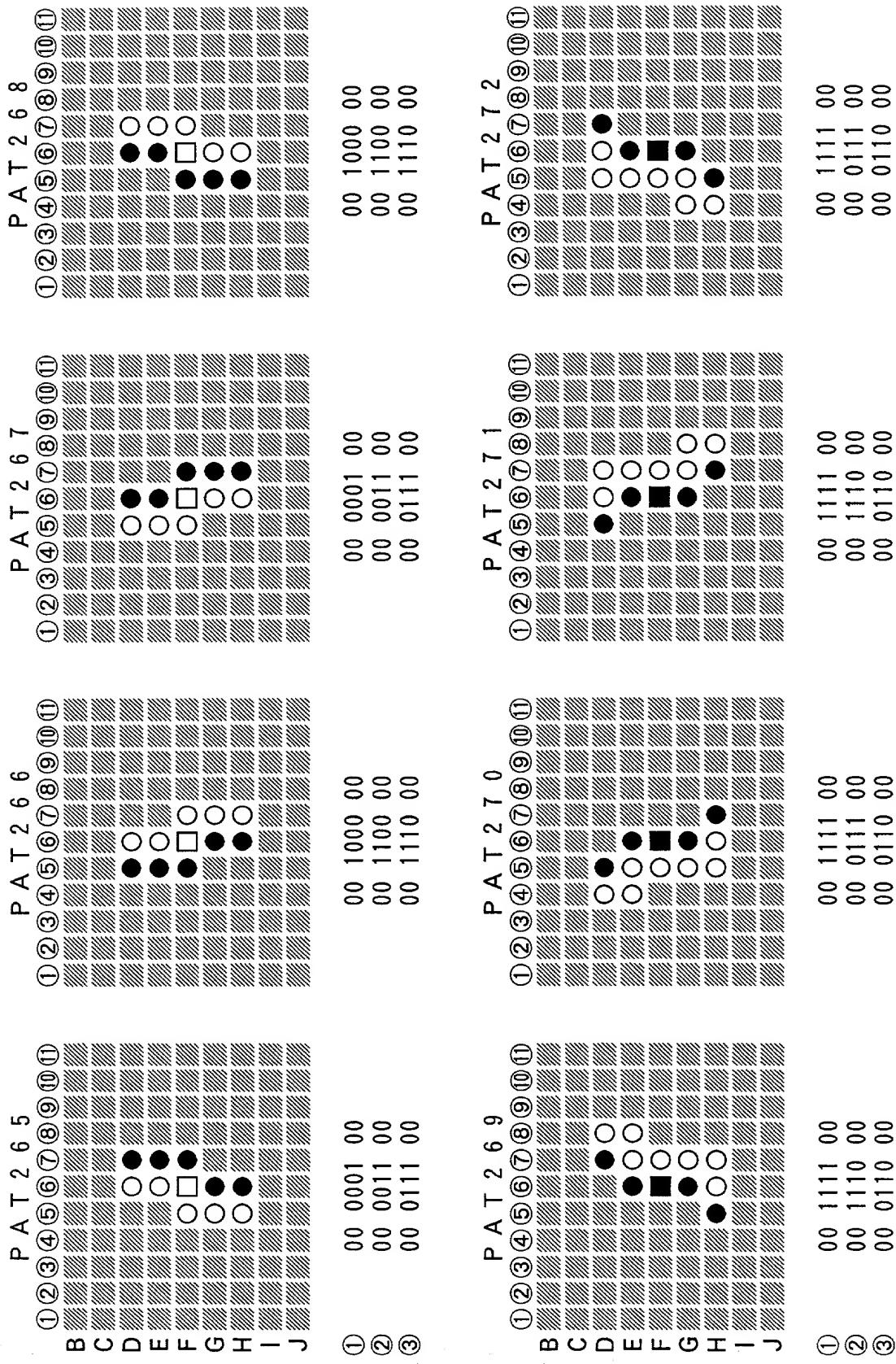


FIG. 24

FIG. 25

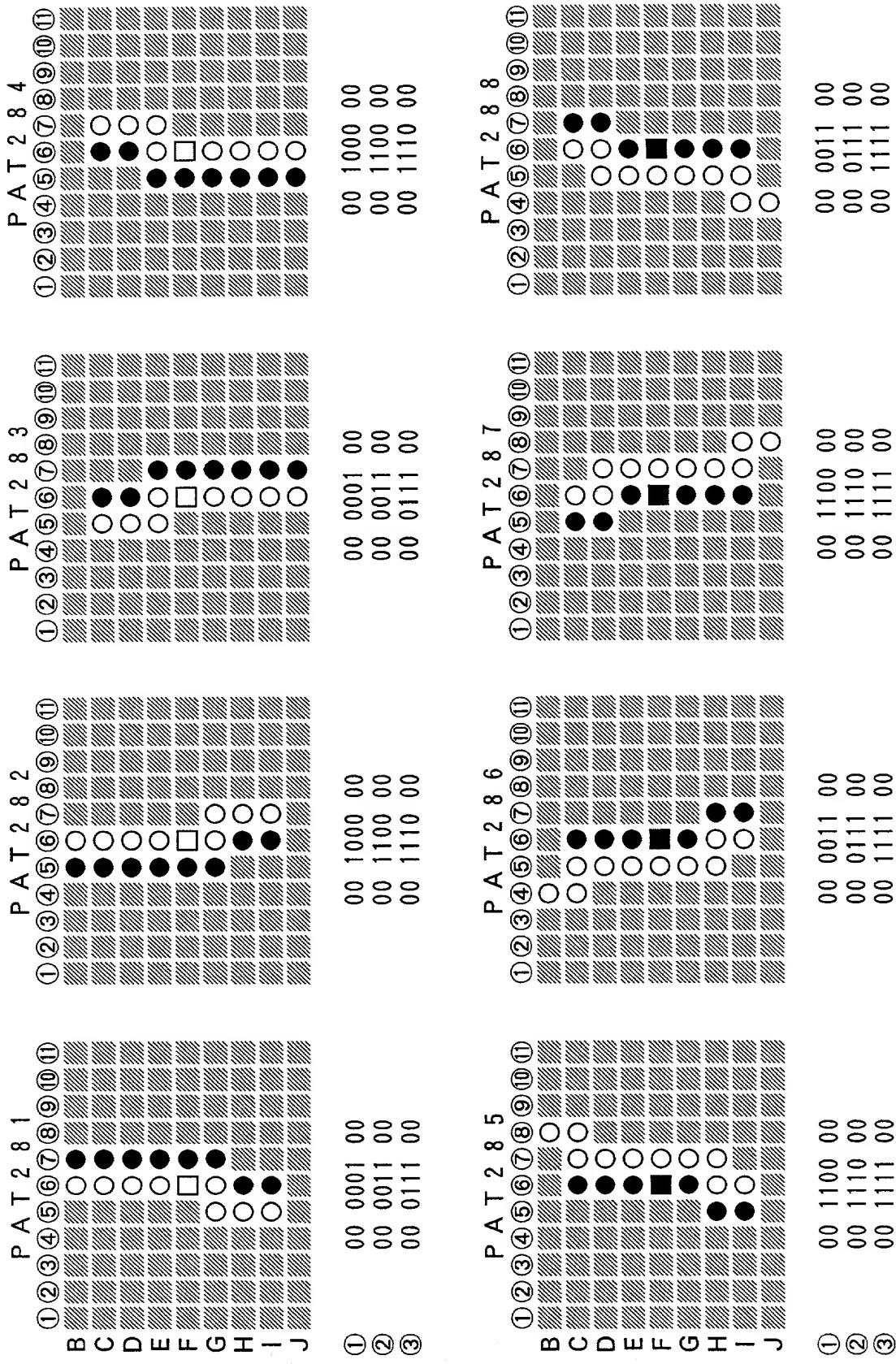


FIG. 26

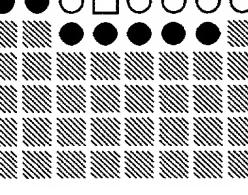
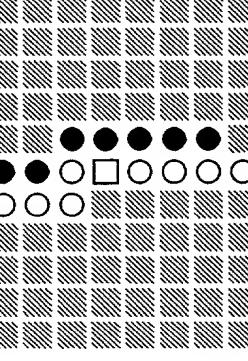
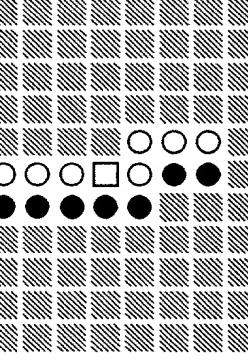
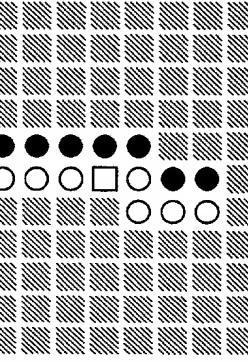
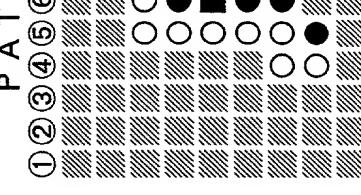
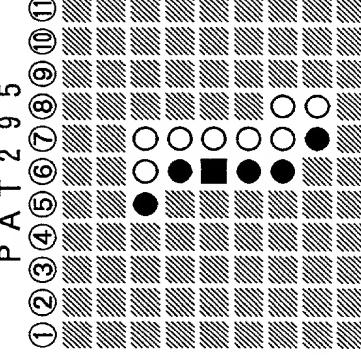
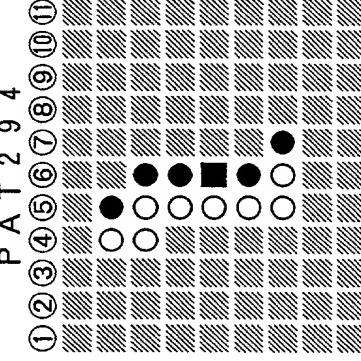
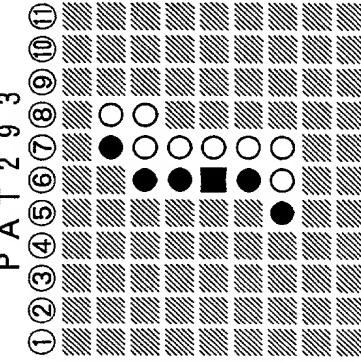
PAT 2 9 2		① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪	00 1000 00 00 1100 00 00 1110 00 00 1111 00
PAT 2 9 1		① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪	00 0001 00 00 0011 00 00 0111 00
PAT 2 9 0		① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪	00 1000 00 00 1100 00 00 1110 00
PAT 2 8 9		① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ B C D E F G H I J	00 0001 00 00 0011 00 00 0111 00
PAT 2 9 3		① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ B C D E F G H I J	00 0011 00 00 0111 00 00 1111 00
PAT 2 9 4		① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪	00 1100 00 00 1110 00 00 1111 00
PAT 2 9 5		① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪	00 1100 00 00 1110 00 00 1111 00
PAT 2 9 6		① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪	00 0011 00 00 0111 00 00 1111 00

FIG. 27

A 10x10 grid of black and white patterns. The columns are labeled 1 through 10 and the rows are labeled 1 through 10. The patterns include diagonal lines, circles, and squares.

①	00	0001	00	00	0001	00
②	00	0011	00	00	0011	00
③	00	0111	00	00	0111	00

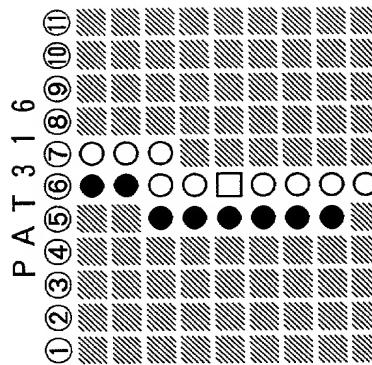
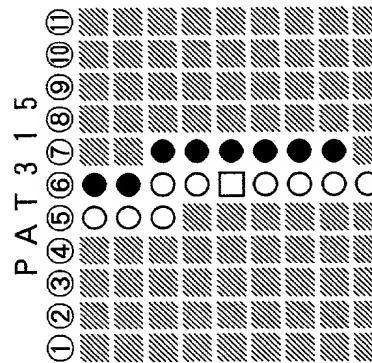
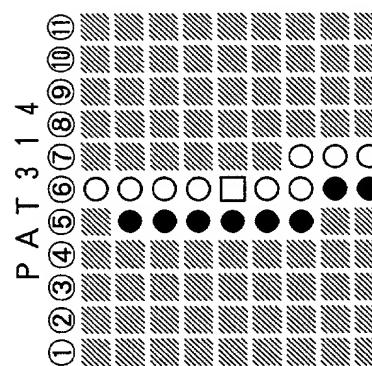
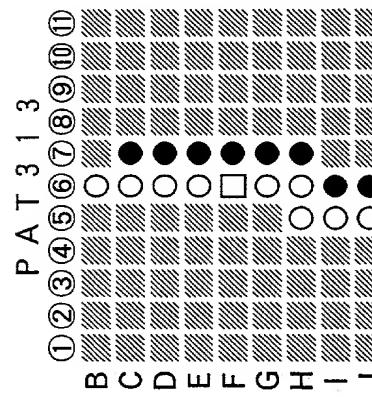
A 10x10 grid of squares. The first column contains the letters P, A, T and the numbers 3, 0, 3. The second column contains the numbers 1, 2, 3, 4, 5. The third column contains the numbers 6, 7, 8, 9, 10. The fourth column contains the numbers 1, 1, 1, 1, 1. The fifth column contains the numbers 1, 1, 1, 1, 1. The sixth column contains the numbers 1, 1, 1, 1, 1. The seventh column contains the numbers 1, 1, 1, 1, 1. The eighth column contains the numbers 1, 1, 1, 1, 1. The ninth column contains the numbers 1, 1, 1, 1, 1. The tenth column contains the numbers 1, 1, 1, 1, 1. The grid contains various symbols: circles, squares, and diagonal lines.

00	1100	00
00	1110	00
00	1111	00
00	0011	00
00	0111	00
00	1100	00
00	1110	00
00	1111	00
00	0011	00
00	0111	00
00	1100	00
00	1110	00
00	1111	00

FIG. 28

00 00 00
00 00 00
00 00 00

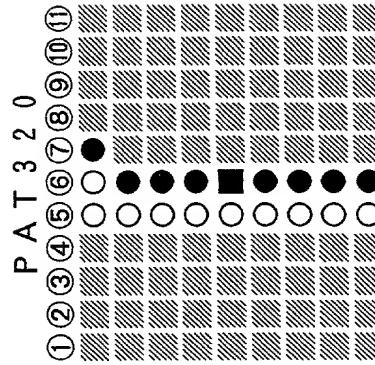
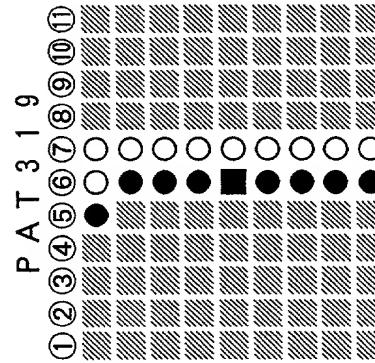
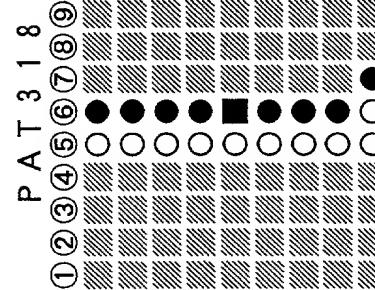
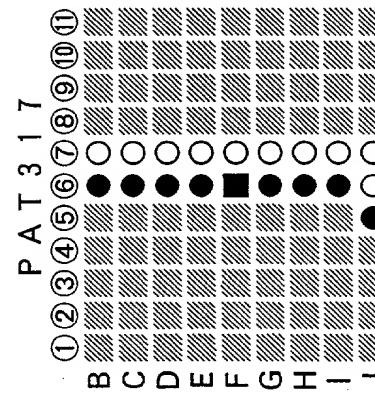
FIG. 29



① 00 0000 00
② 00 0001 00
③ 00 0011 00

00 0000 00
00 1000 00
00 0011 00

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① 00 1110 00
② 00 1100 00
③ 00 1111 00

00 0000 00
00 1000 00
00 1100 00

00 0000 00
00 1000 00
00 1100 00

FIG. 30

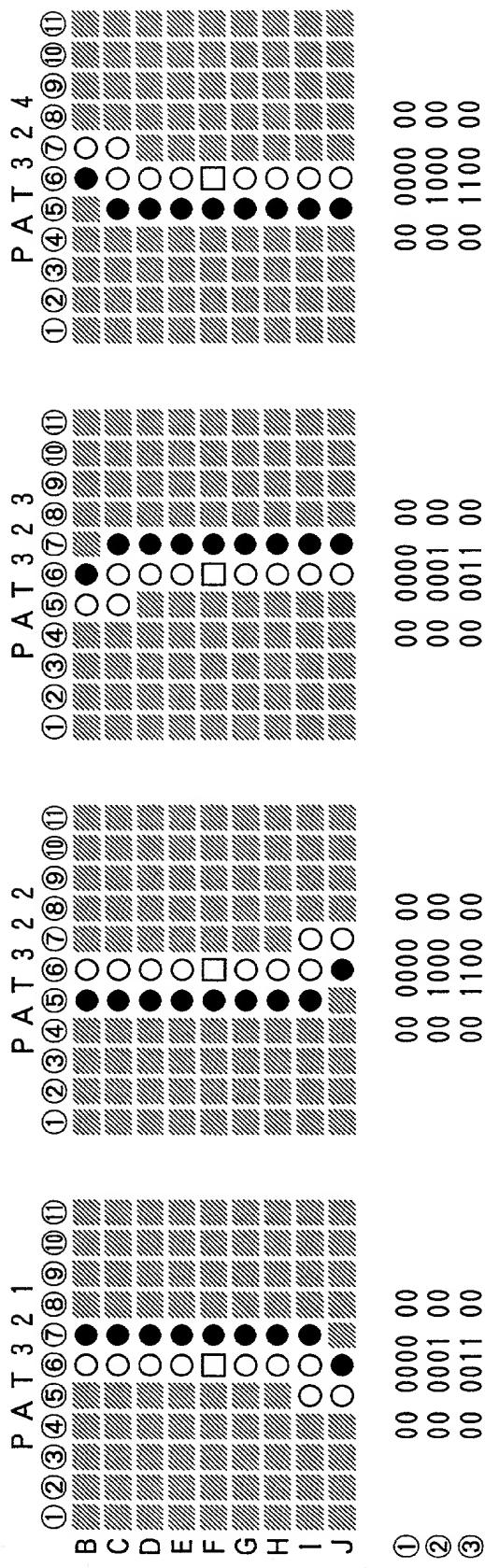


FIG. 31

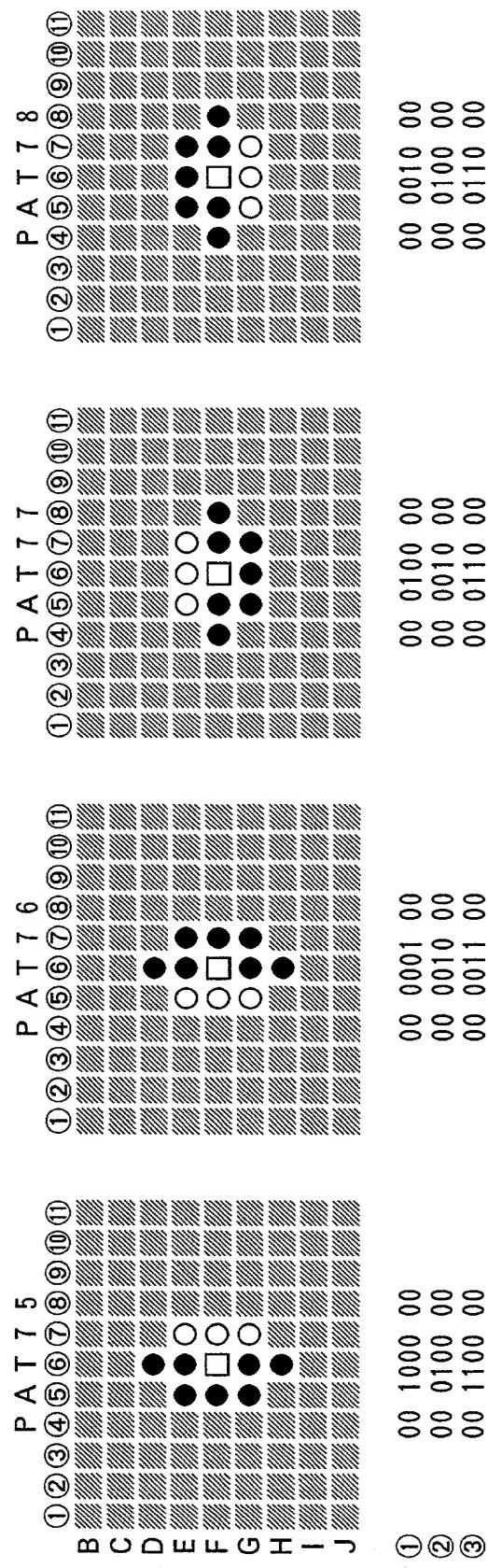


FIG. 32

FIG. 33

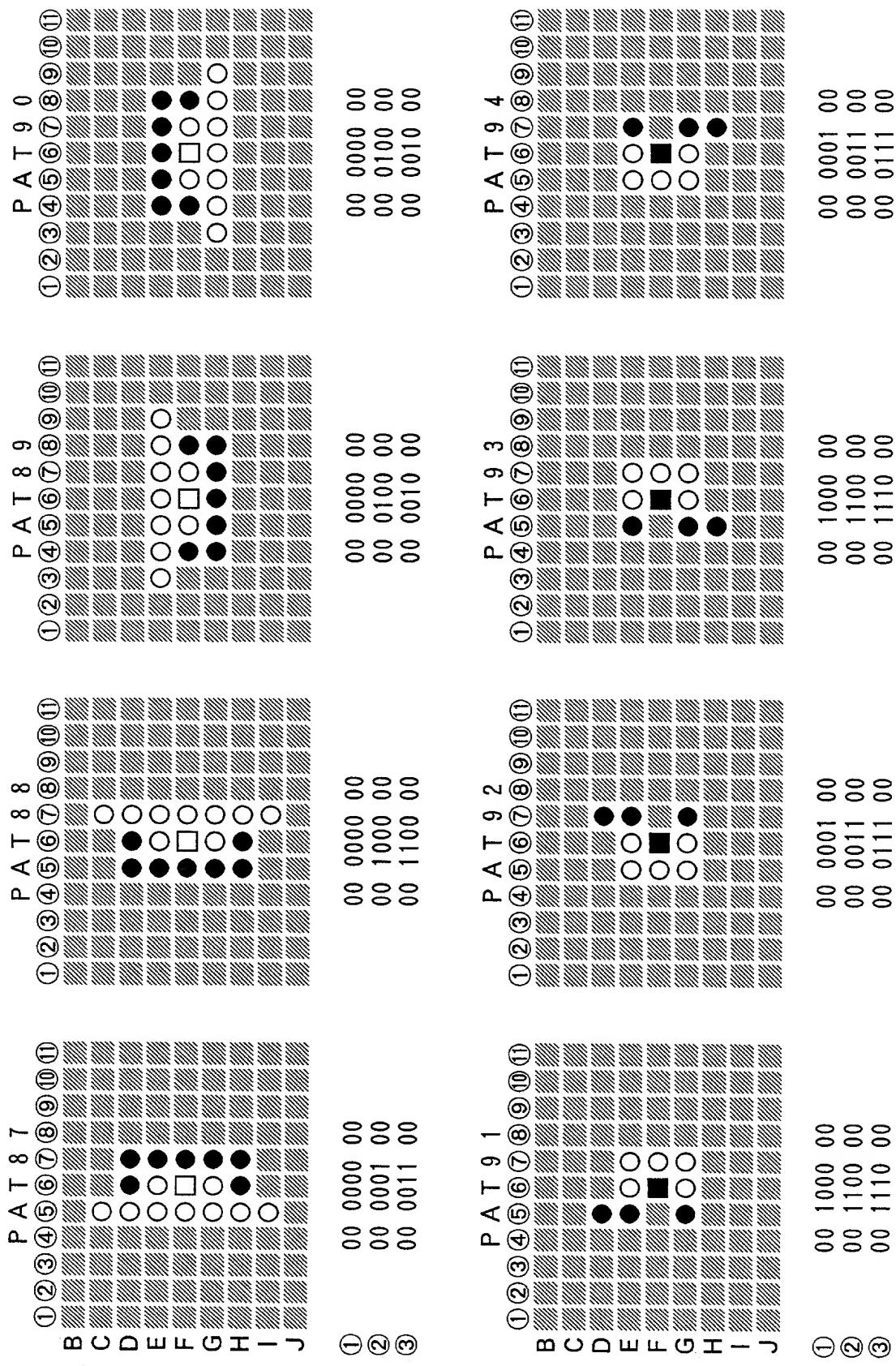
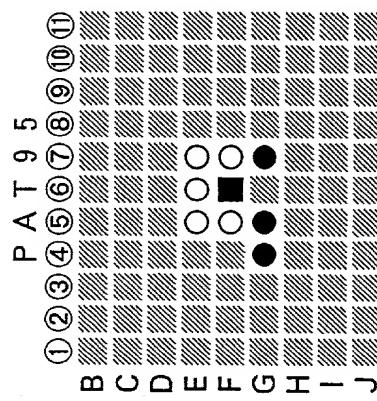


FIG. 34



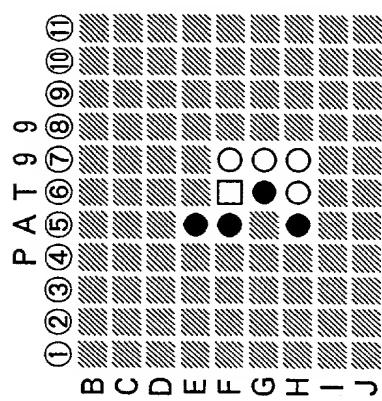
① 00 0100 00
 ② 00 0110 00
 ③ 00 0110 00

PAT 9 6

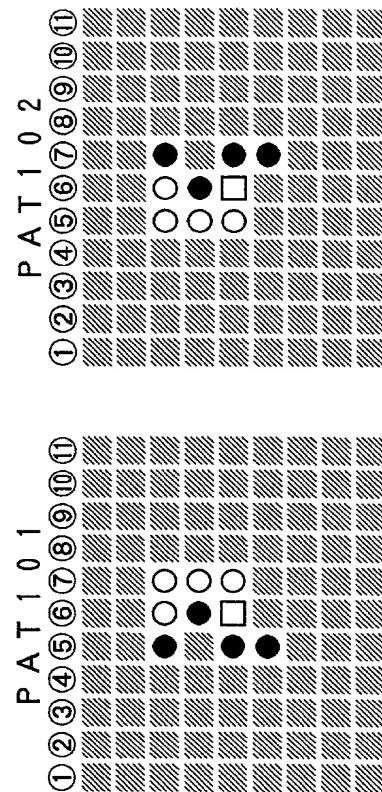
①②③④⑤⑥⑦⑧⑨⑩⑪

B C D E F G H I J

00 0010 00
 00 0110 00
 00 0111 00



① 00 0000 00
 ② 00 1000 00
 ③ 00 1100 00



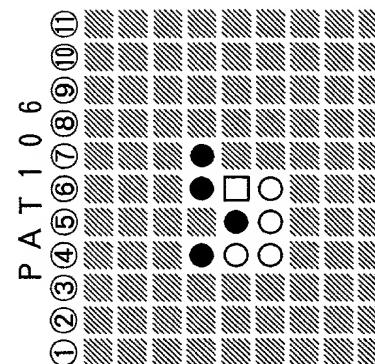
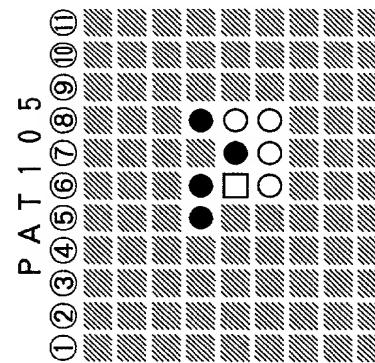
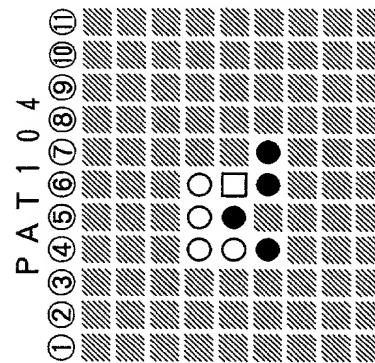
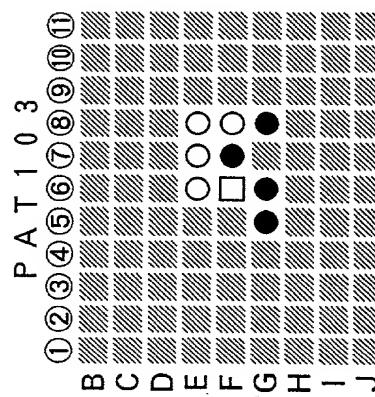
00 0010 00
 00 0110 00
 00 0111 00



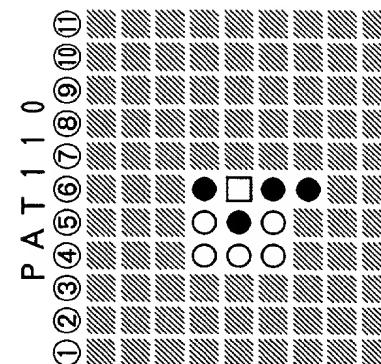
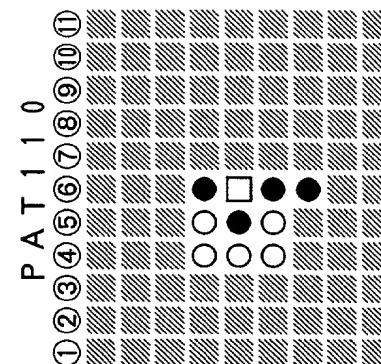
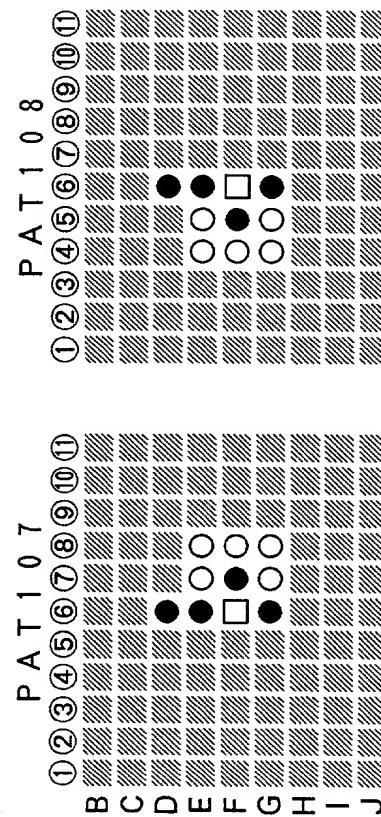
00 0000 00
 00 1000 00
 00 1100 00

00 0000 00
 00 0001 00
 00 0011 00

FIG. 35



①	00	0000	00
②	00	0010	00
③	00	0110	00



①	00	0000	00
②	00	0001	00
③	00	0011	00

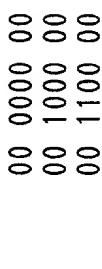
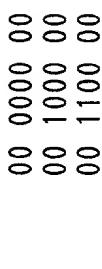
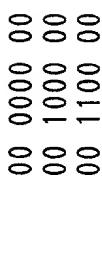


FIG. 36

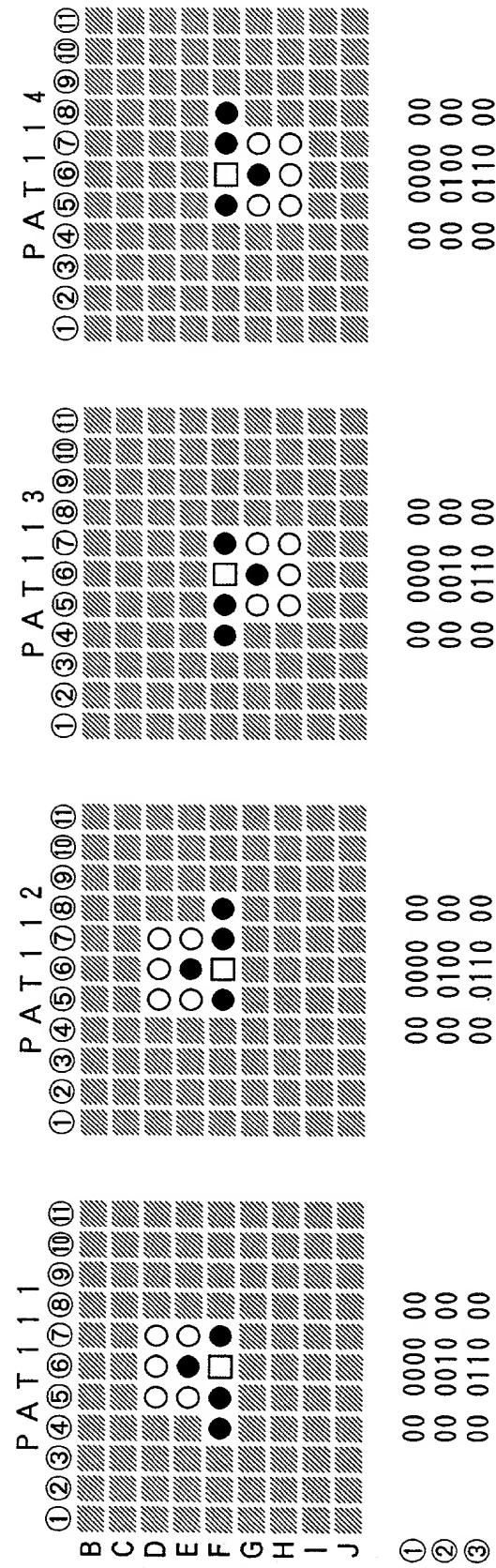


FIG. 37

FIG. 38

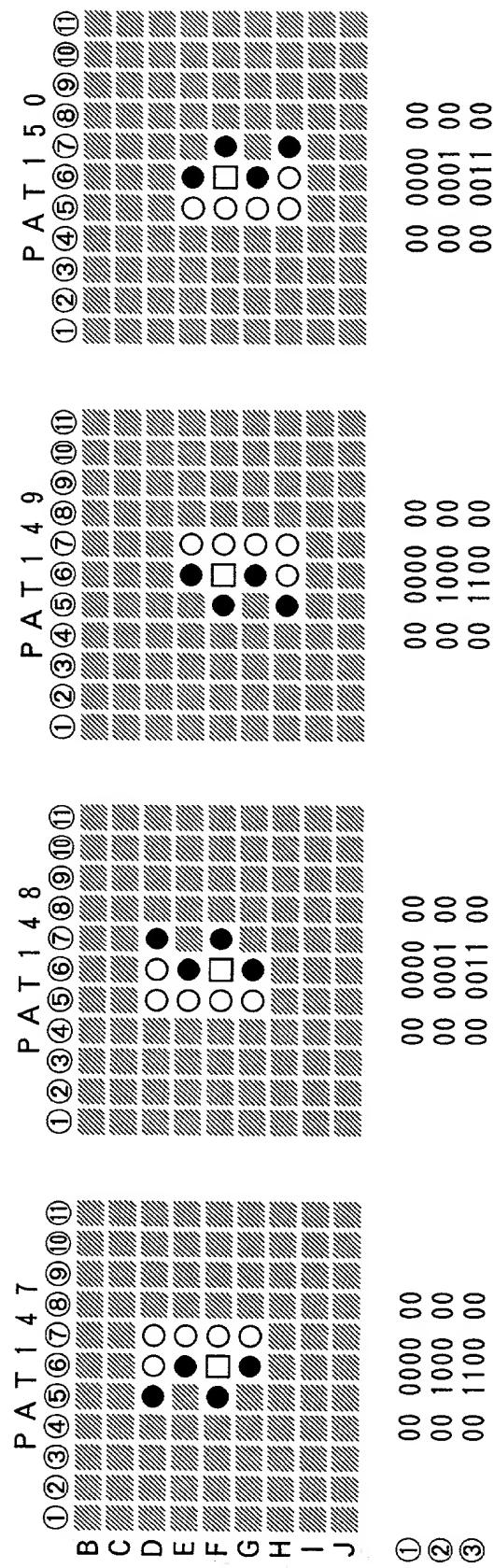


FIG. 39A

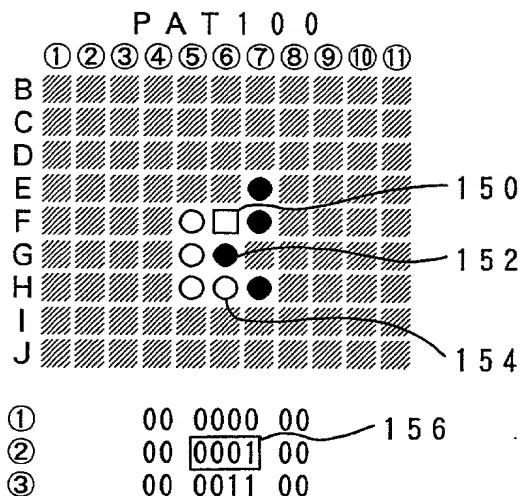


FIG. 39B

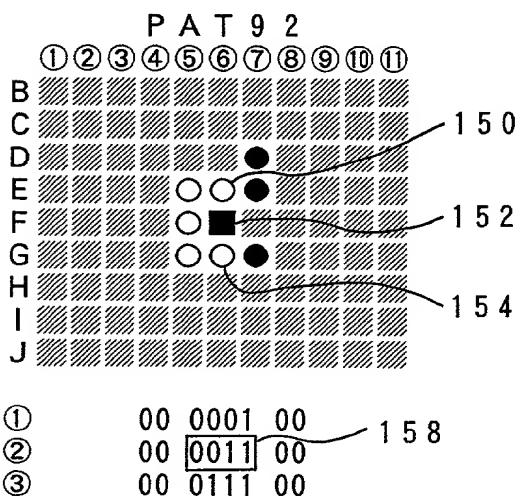


FIG. 39C

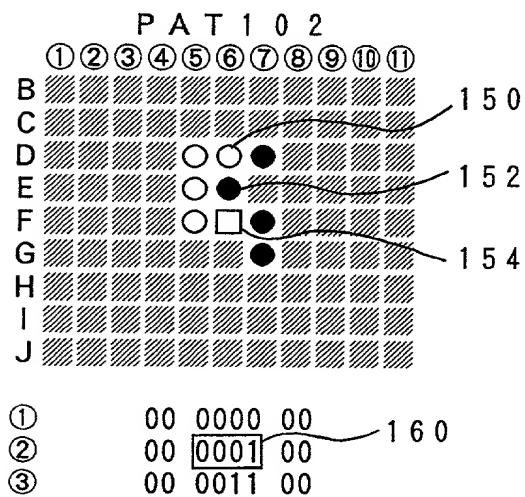
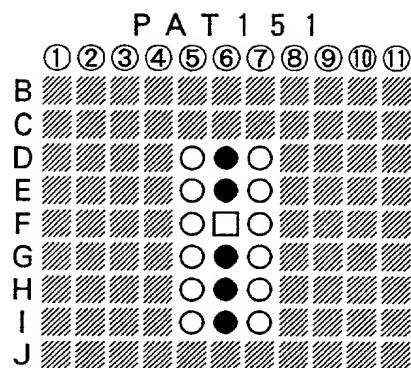


FIG. 40

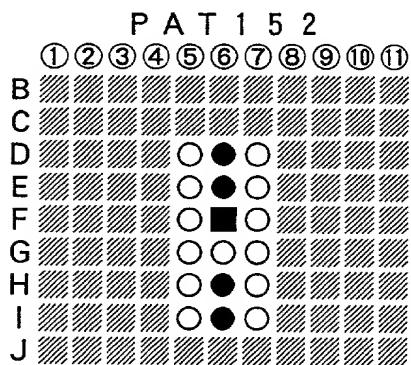
DENSITY-PRESERVATION-PATTERN COMBINATIONS		
PAT91	PAT99	PAT101
PAT92	PAT100	PAT102
PAT93	PAT101	PAT99
PAT94	PAT102	PAT100

FIG. 41A



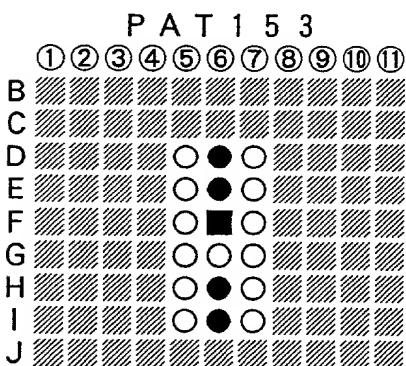
① 00 0100 00
 ② 00 0110 00
 ③ 00 0111 00

FIG. 41B



① 00 0011 00
 ② 00 0111 00
 ③ 00 1111 00

FIG. 41C



① 00 1100 00
 ② 00 1110 00
 ③ 00 1111 00

FIG. 42A

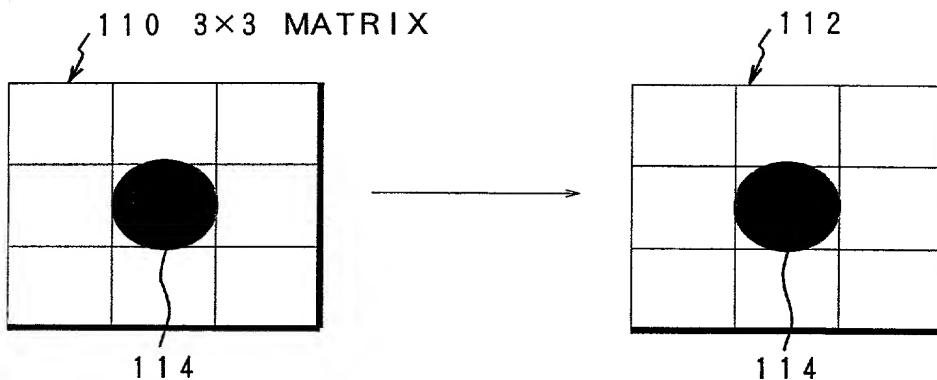


FIG. 42B

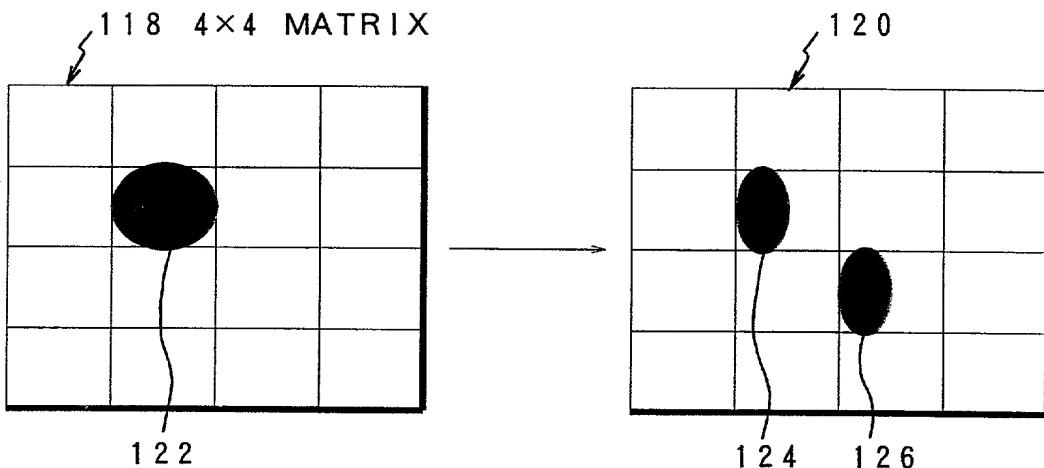


FIG. 42C

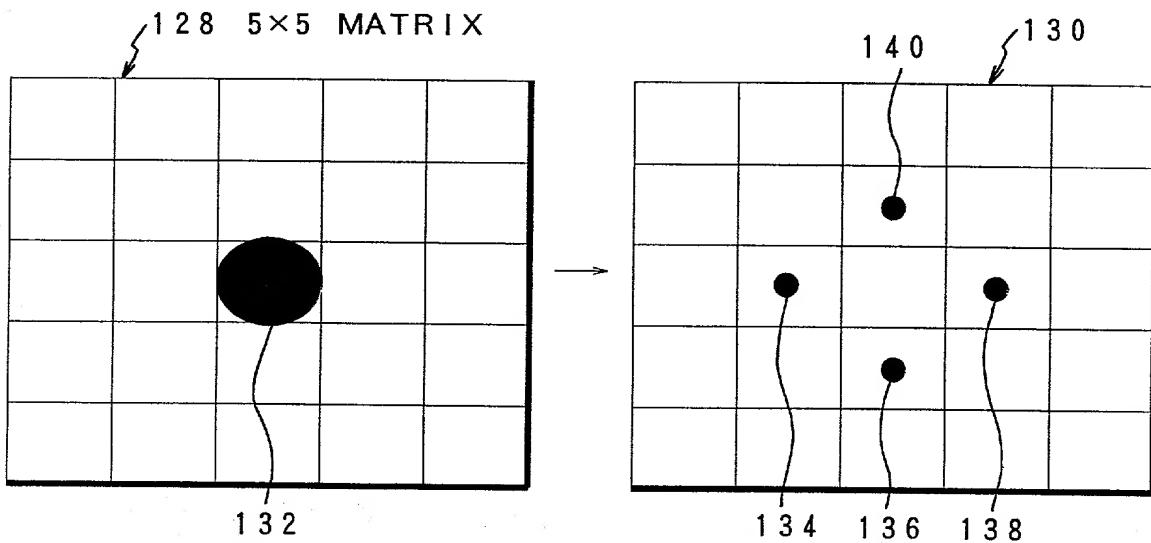
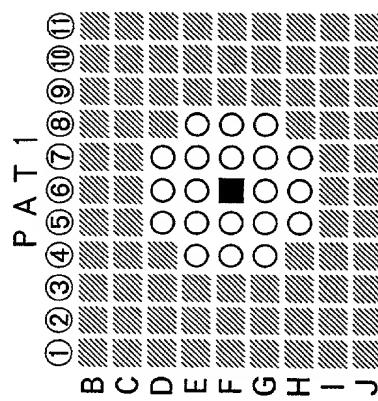
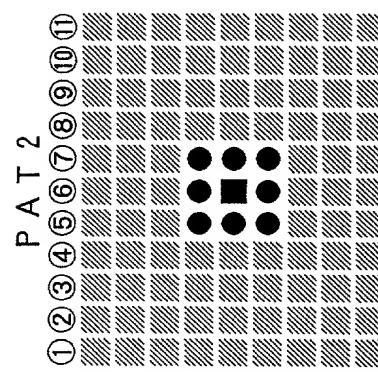


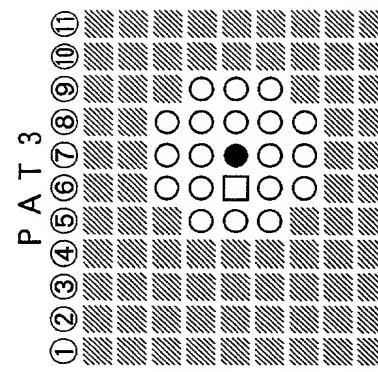
FIG. 43



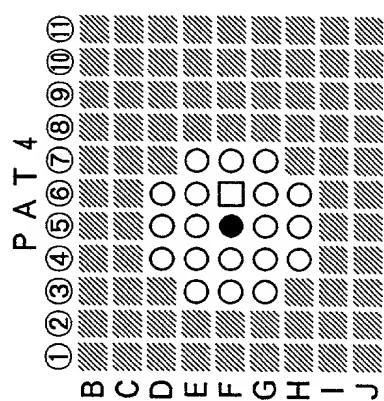
① 00 0000 00
② 00 0010 00
③ 00 0110 00



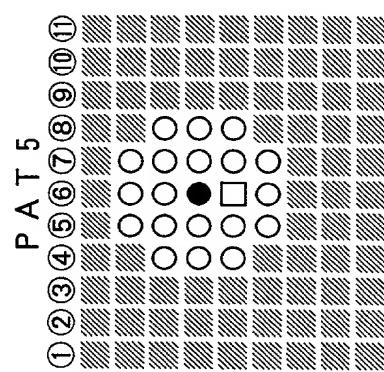
00 1111 00
00 1110 00
00 0111 00



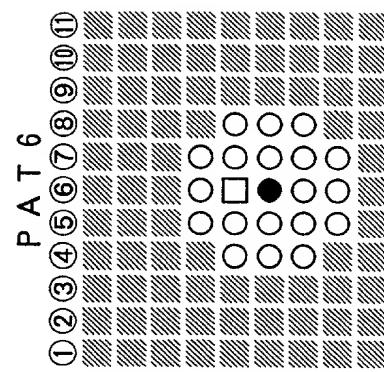
00 0100 00
00 0010 00
00 1110 00



① 00 0100 00
② 00 0010 00
③ 00 0111 00



00 0010 00
00 0100 00
00 0110 00



00 0100 00
00 0010 00
00 0110 00

FIG. 44

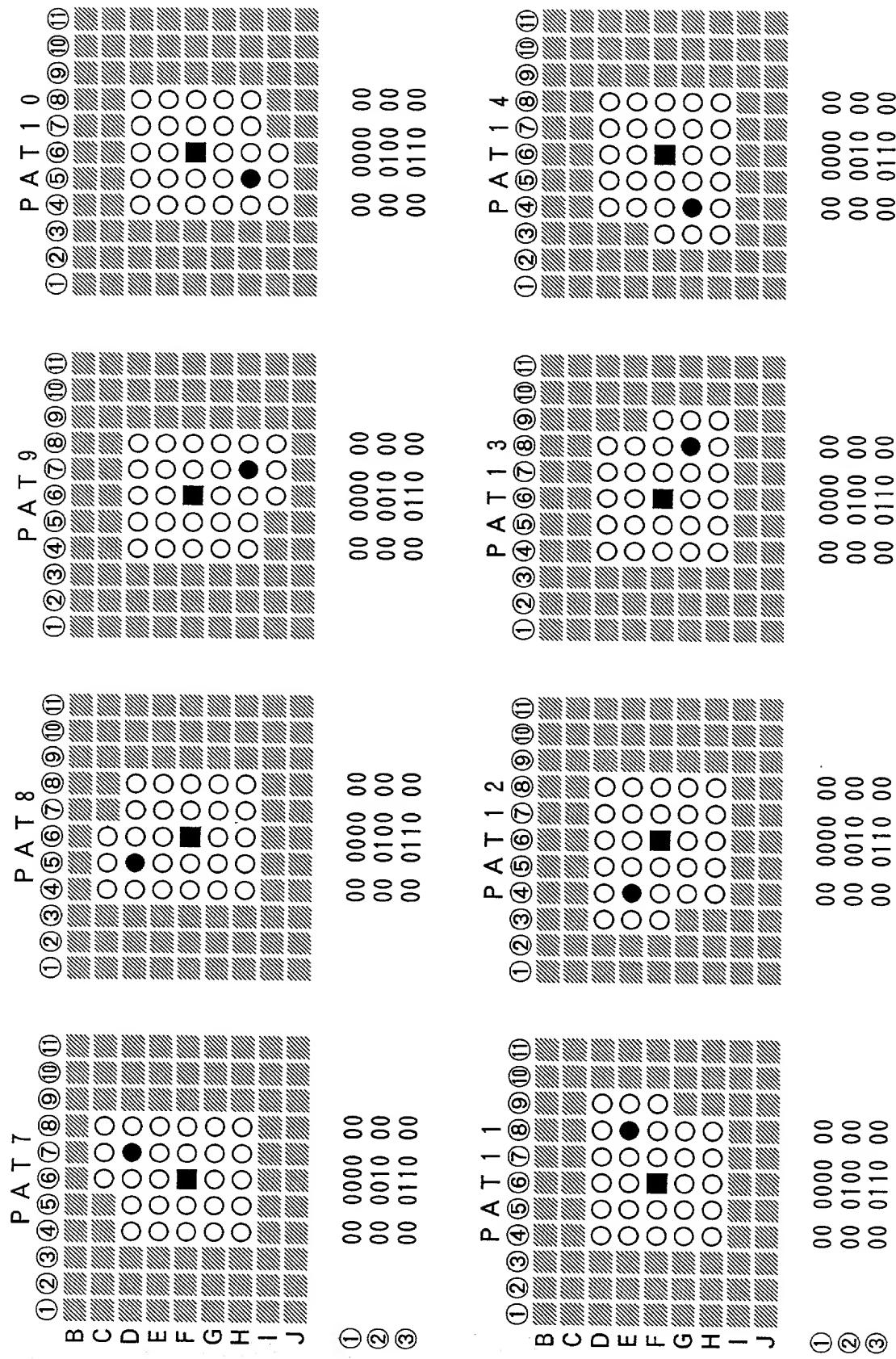
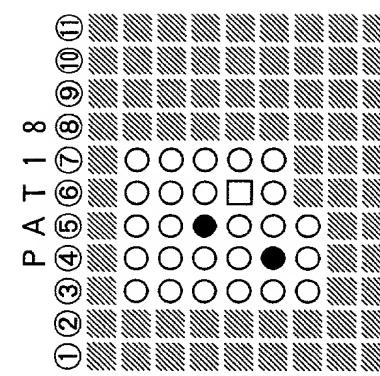
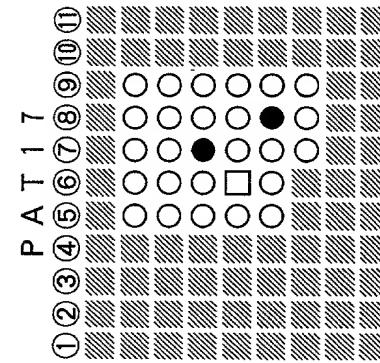
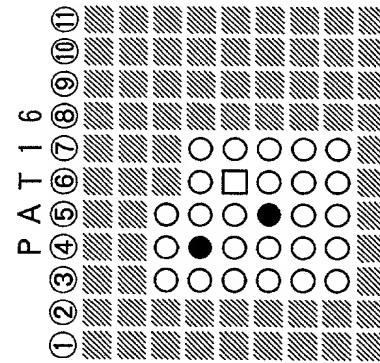
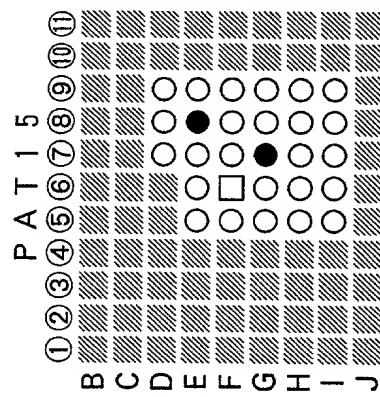


FIG. 45



	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
①	00	0000	00								
②	00	0100	00								
③	00	0110	00								

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
①	00	0000	00								
②	00	0100	00								
③	00	0110	00								
④	00	0000	00								
⑤	00	0100	00								
⑥	00	0110	00								
⑦	00	0000	00								
⑧	00	0100	00								
⑨	00	0110	00								
⑩	00	0000	00								
⑪	00	0100	00								

FIG. 46

FIG. 47

FIG. 48

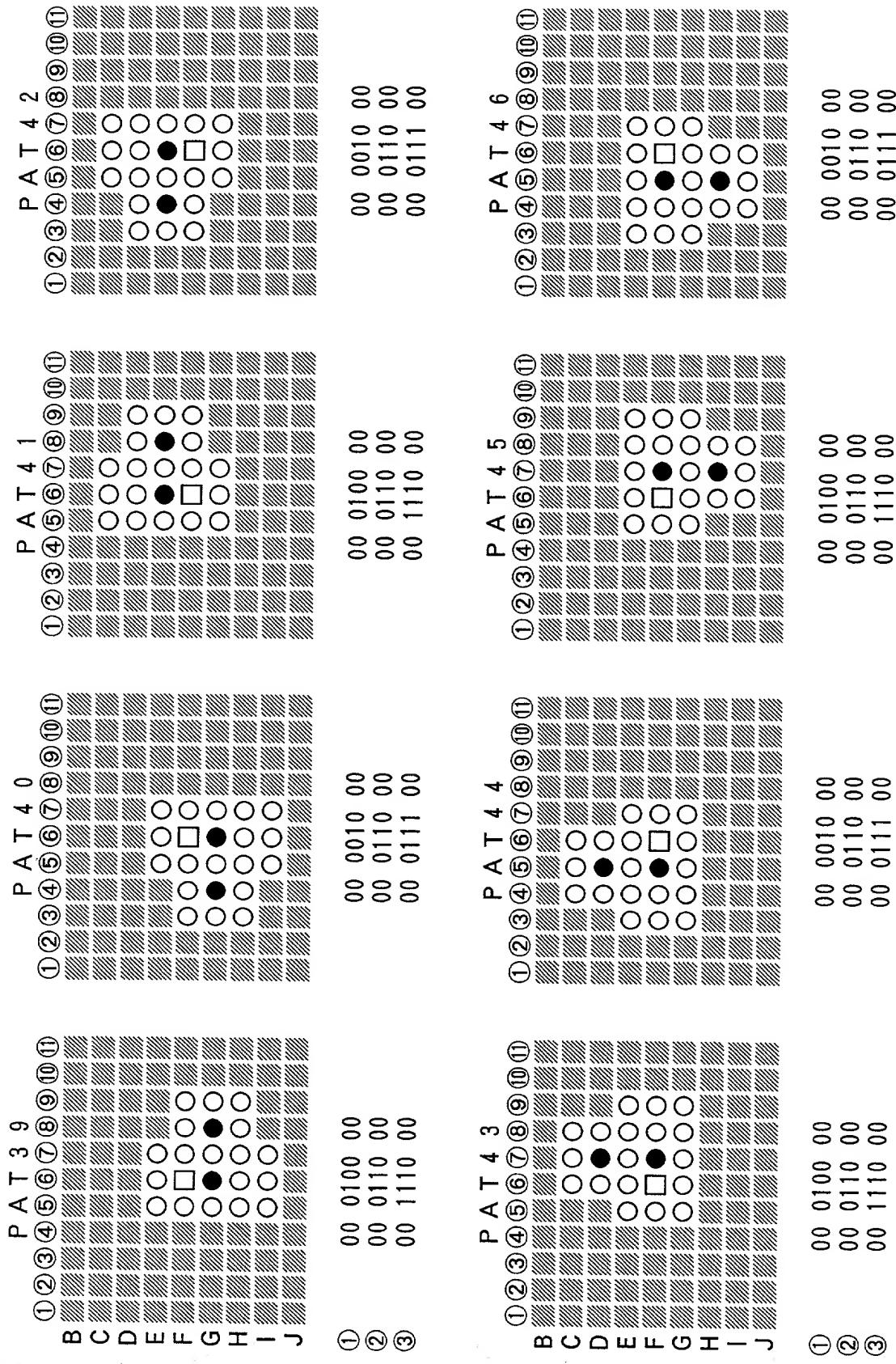


FIG. 49

FIG. 50

PAT 5 5		PAT 5 6		PAT 5 7		PAT 5 8		PAT 6 0		PAT 6 1		PAT 6 2	
①	00 0100 00	①	00 0100 00	①	00 0100 00	①	00 0100 00	①	00 0100 00	①	00 0100 00	①	00 0100 00
②	00 0110 00	②	00 0110 00	②	00 0110 00	②	00 0110 00	②	00 0110 00	②	00 0110 00	②	00 0110 00
③	00 0110 00												
B													
C													
D													
E													
F													
G													
H													
I													
J													
PAT 5 9		PAT 6 7		PAT 6 8		PAT 6 9		PAT 6 10		PAT 6 11		PAT 6 12	
①	00 0010 00	①	00 0010 00	①	00 0010 00	①	00 0010 00	①	00 0010 00	①	00 0010 00	①	00 0010 00
②	00 0011 00	②	00 0011 00	②	00 0011 00	②	00 0011 00	②	00 0011 00	②	00 0011 00	②	00 0011 00
③	00 0011 00												
B													
C													
D													
E													
F													
G													
H													
I													
J													

FIG. 51

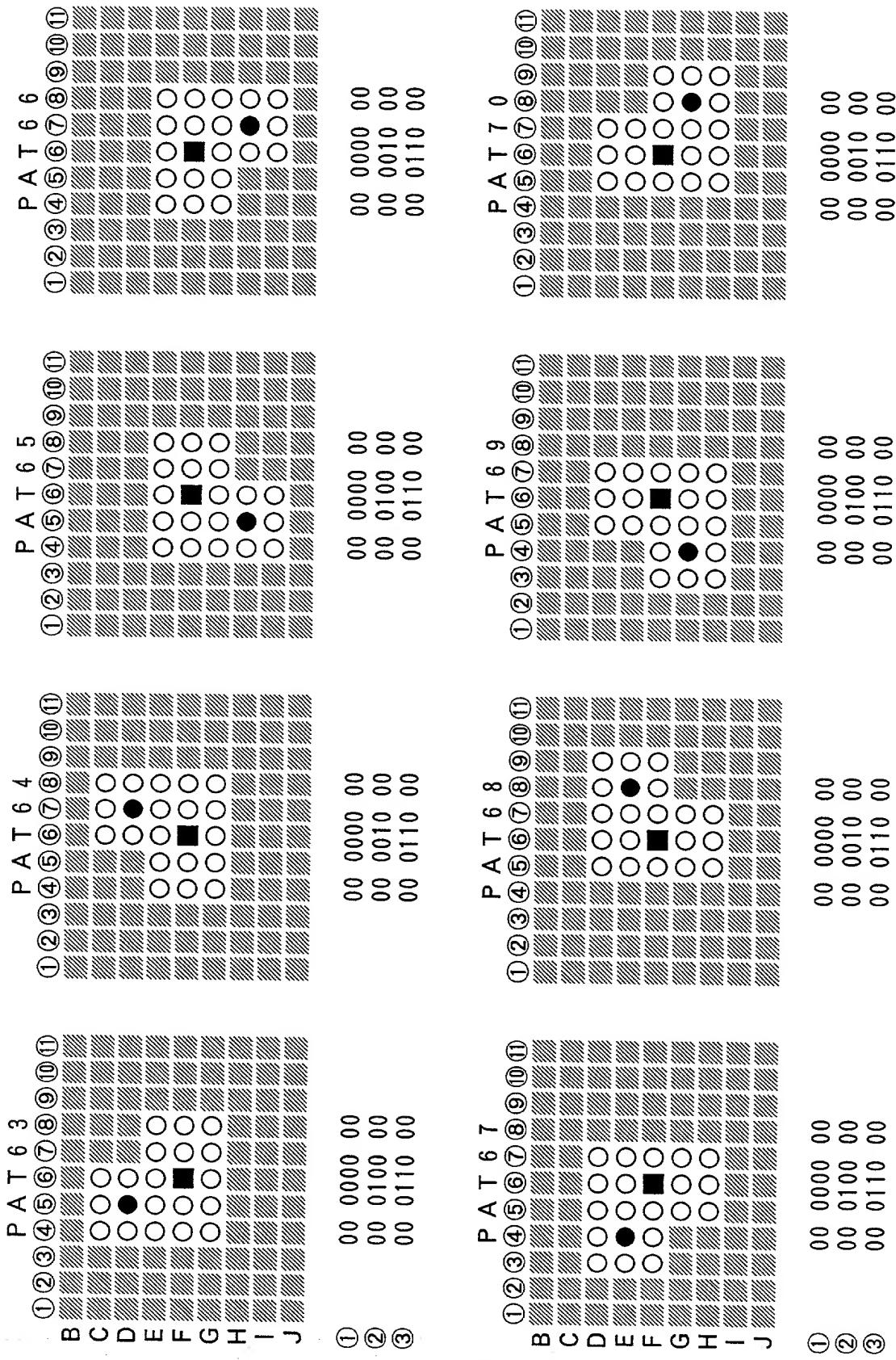


FIG. 52

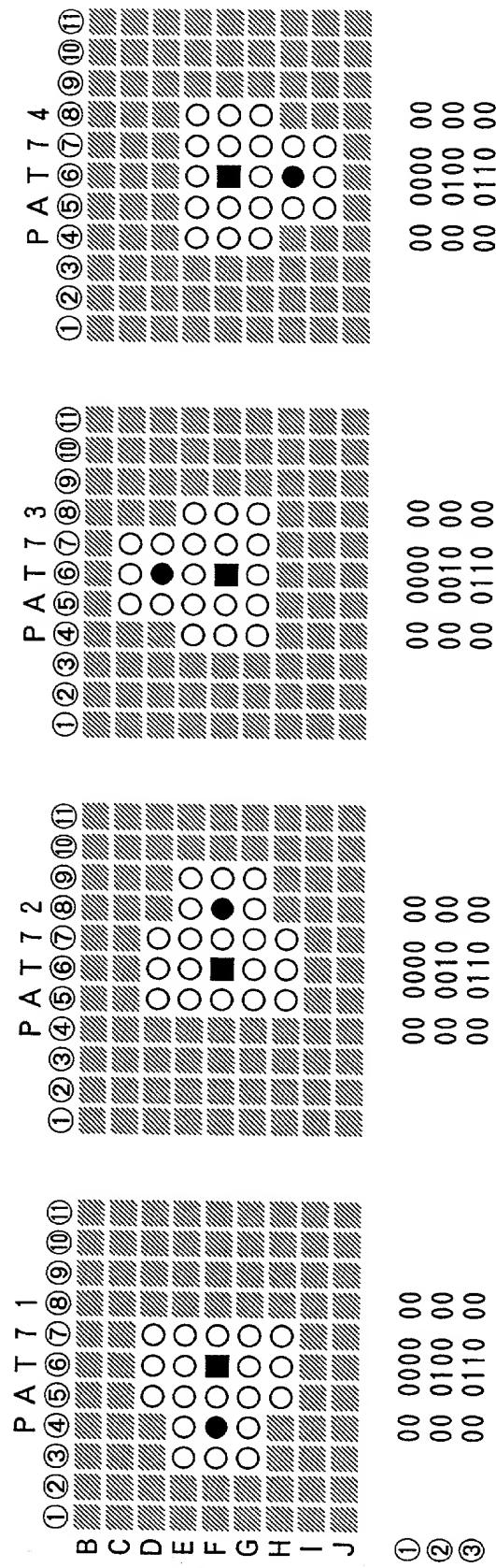


FIG. 53

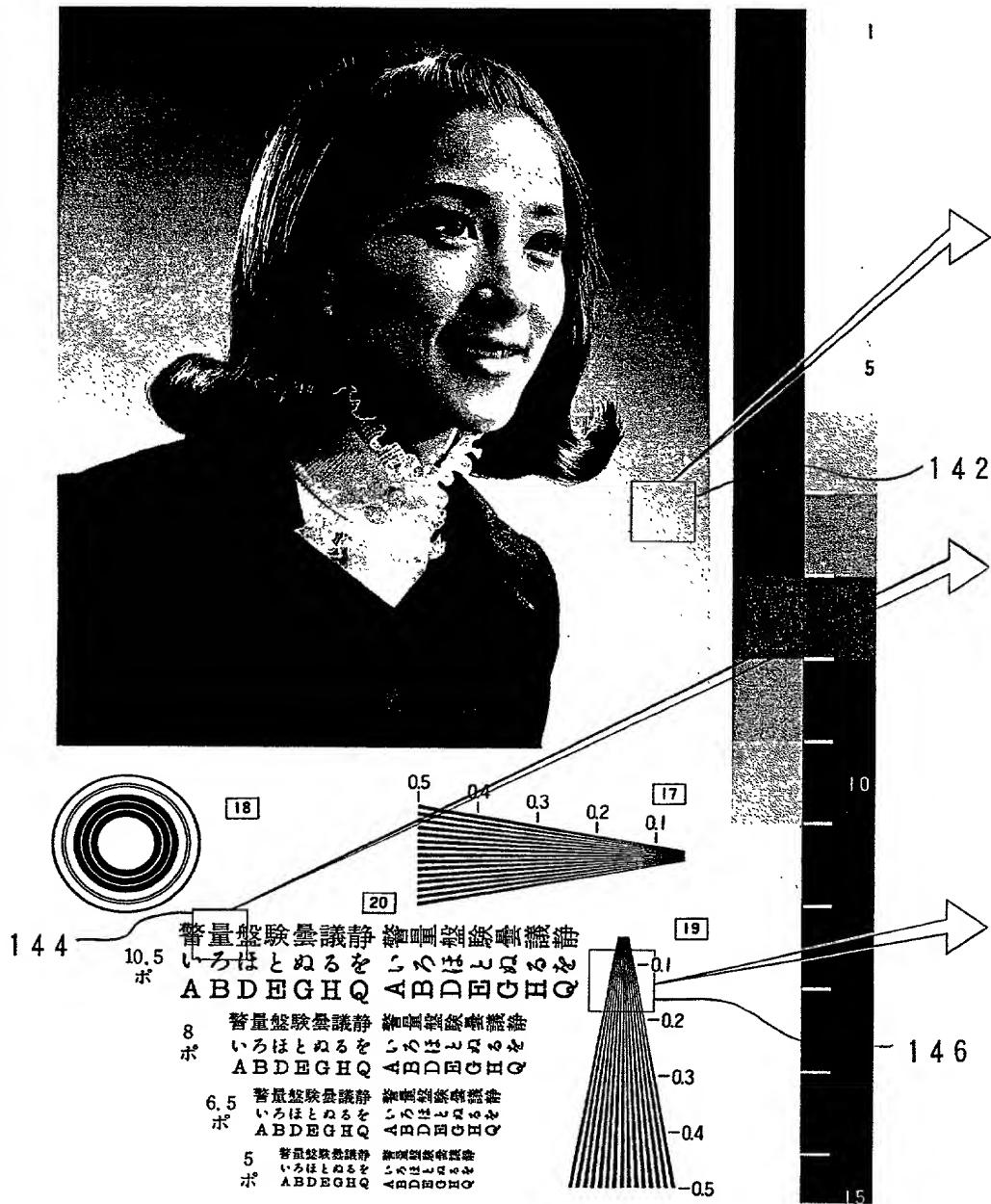


FIG. 54

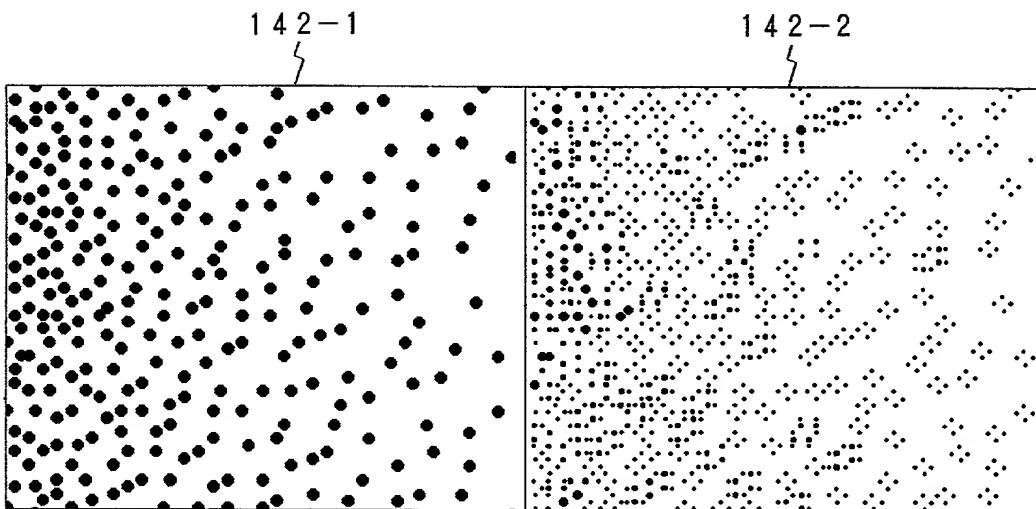
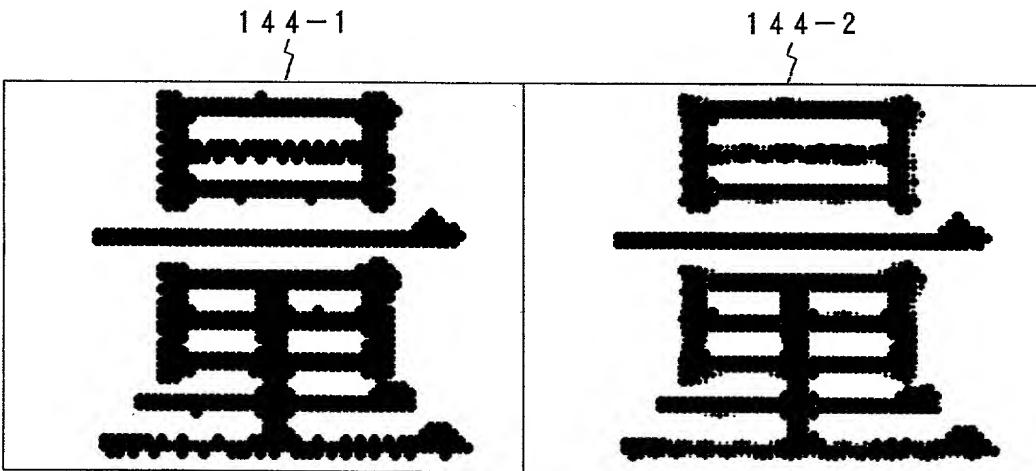


FIG. 55



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FIG. 56

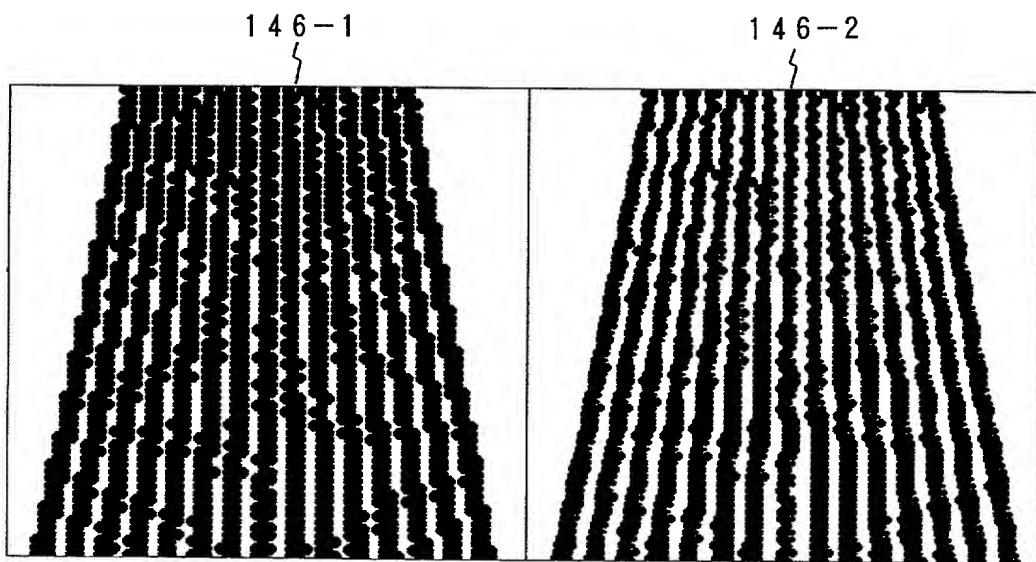
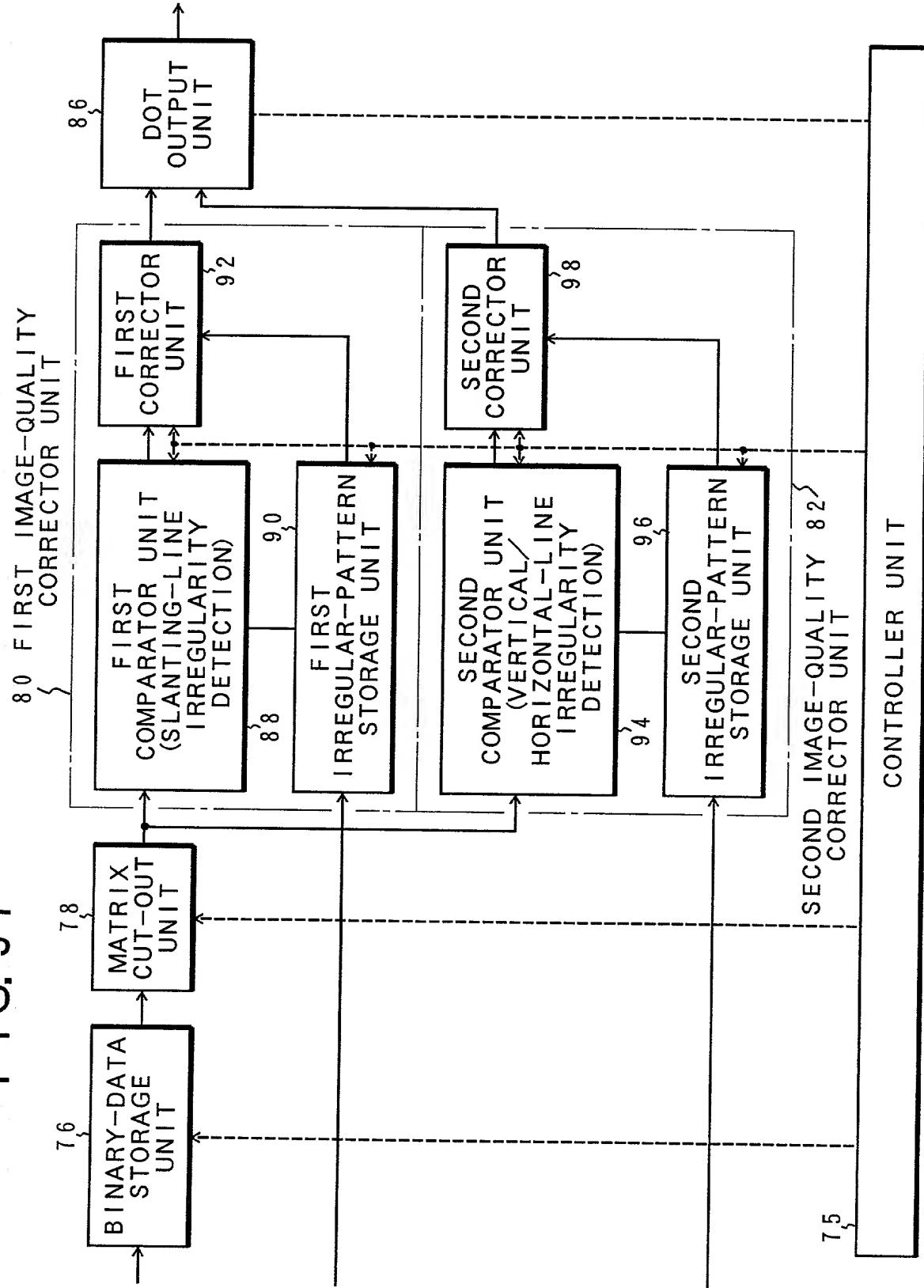


FIG. 57



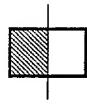


FIG. 58A

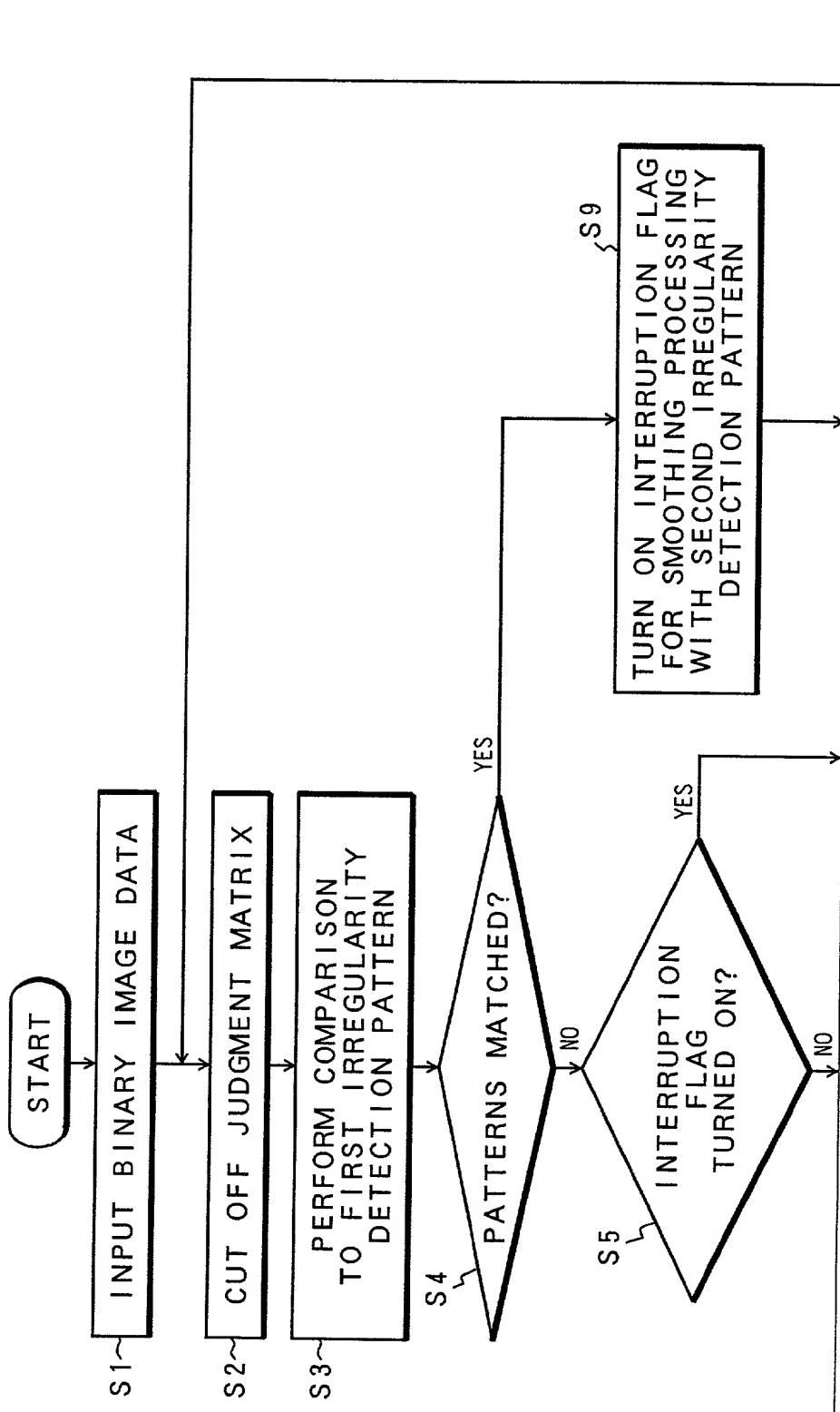


FIG. 58B

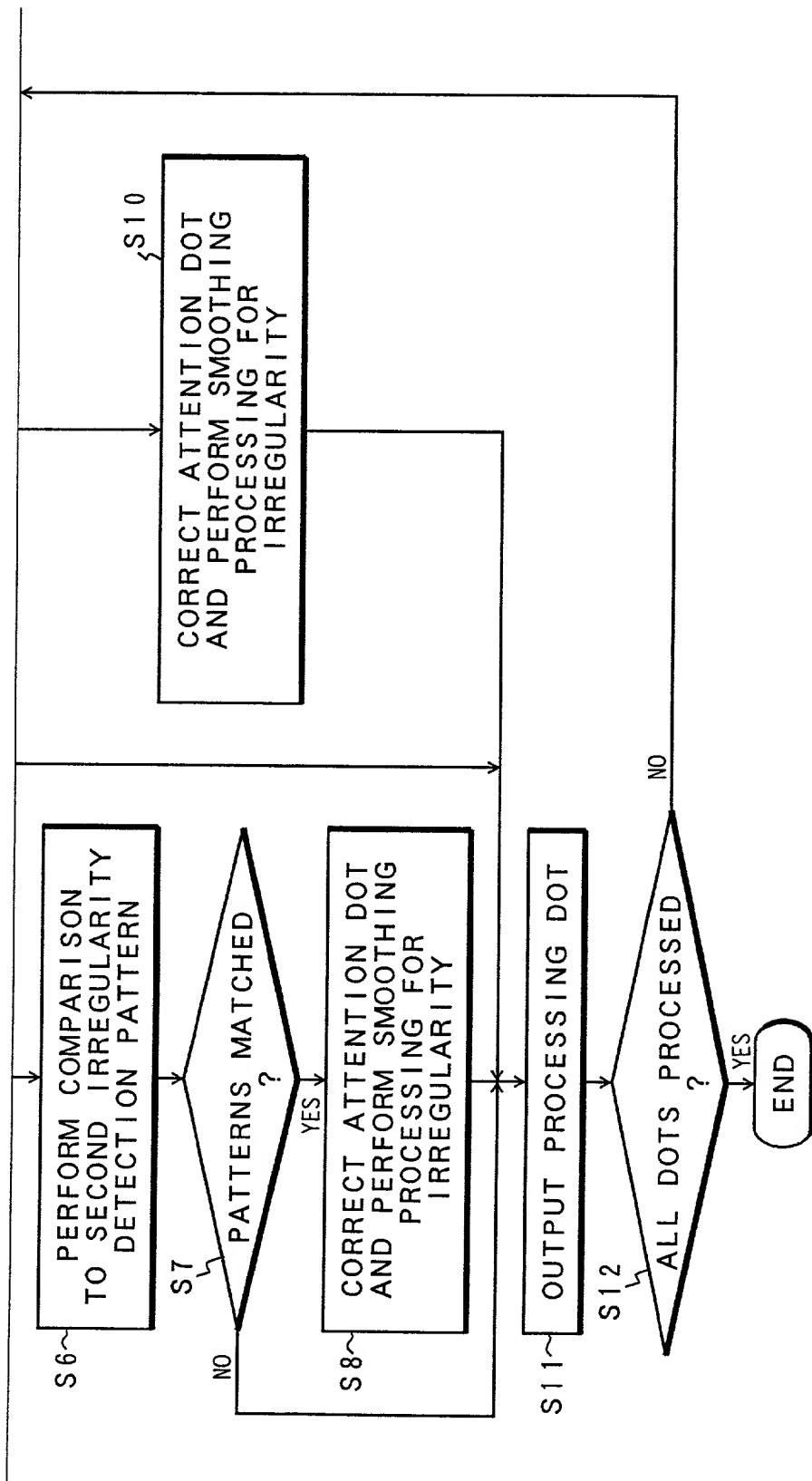
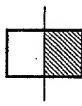
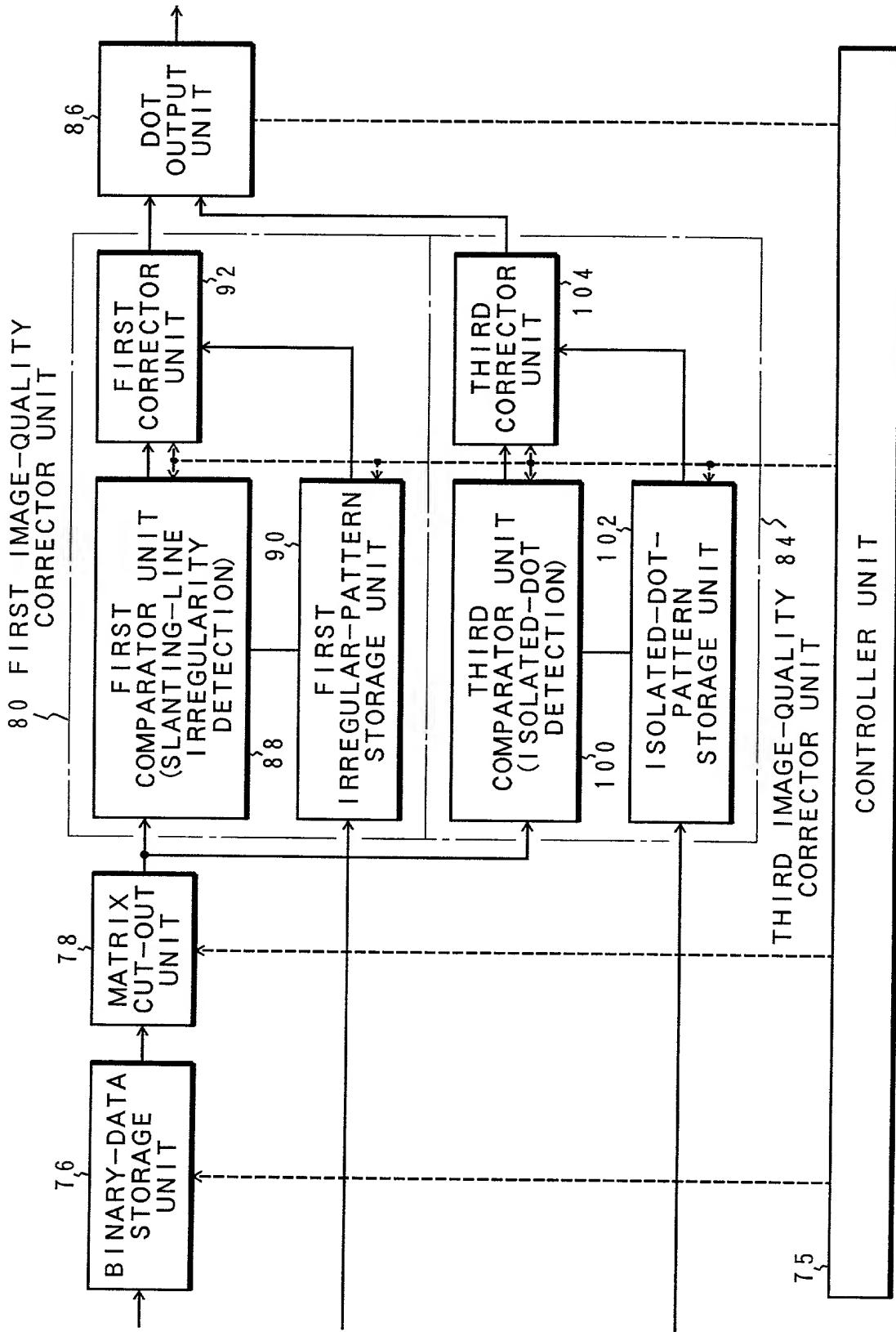


FIG. 59

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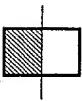


FIG. 60A

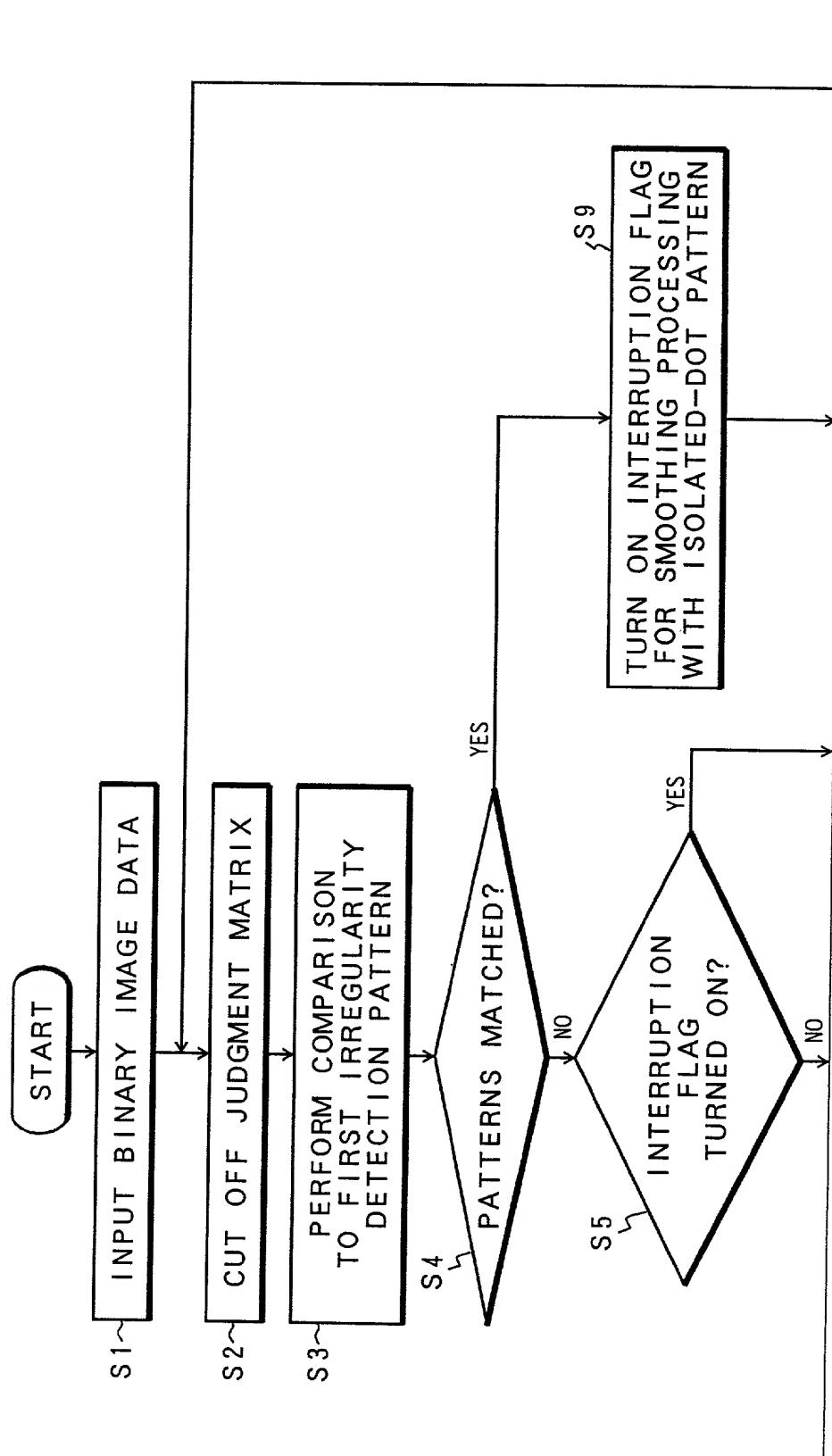




FIG. 60B

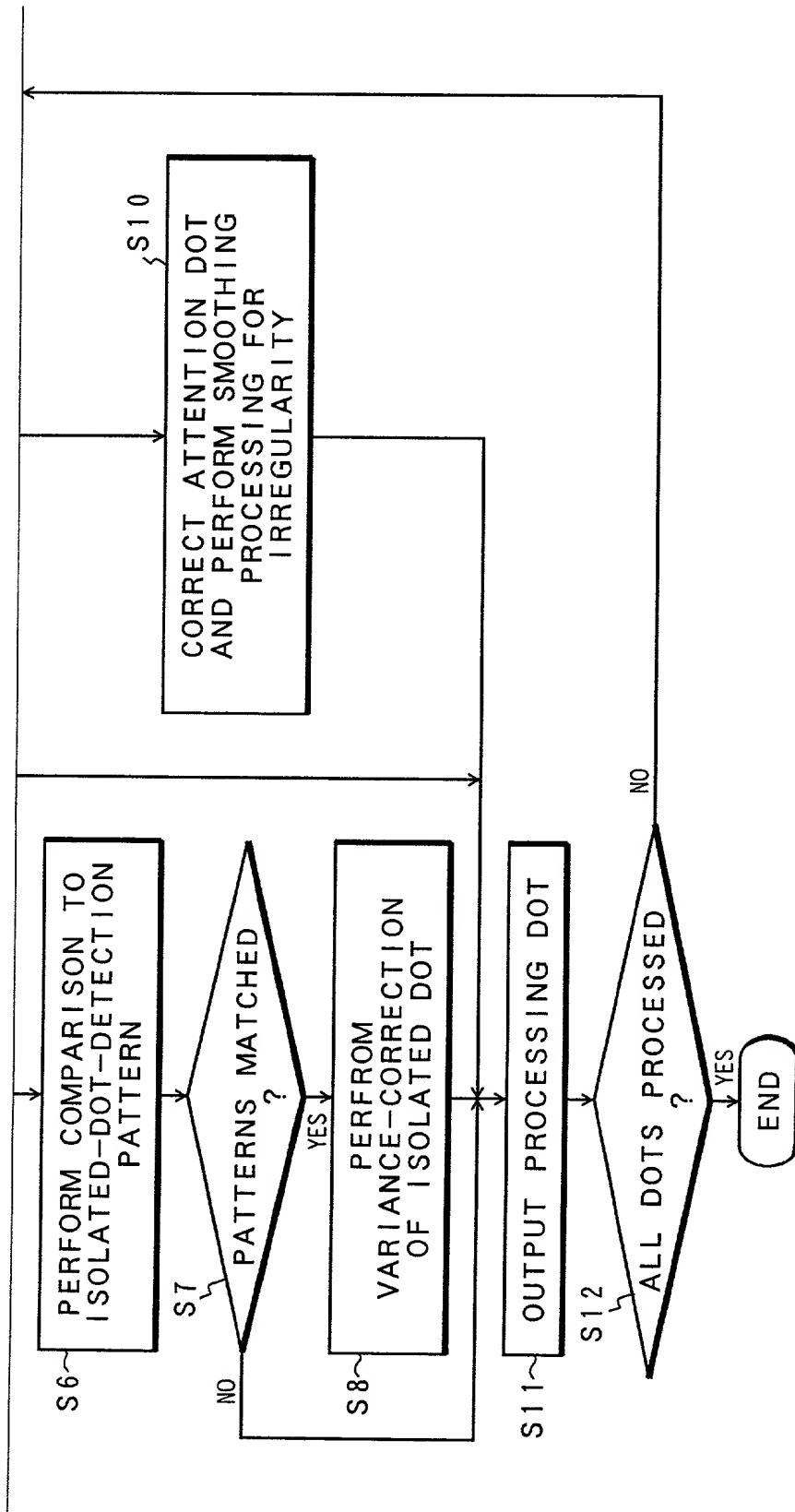


FIG. 61

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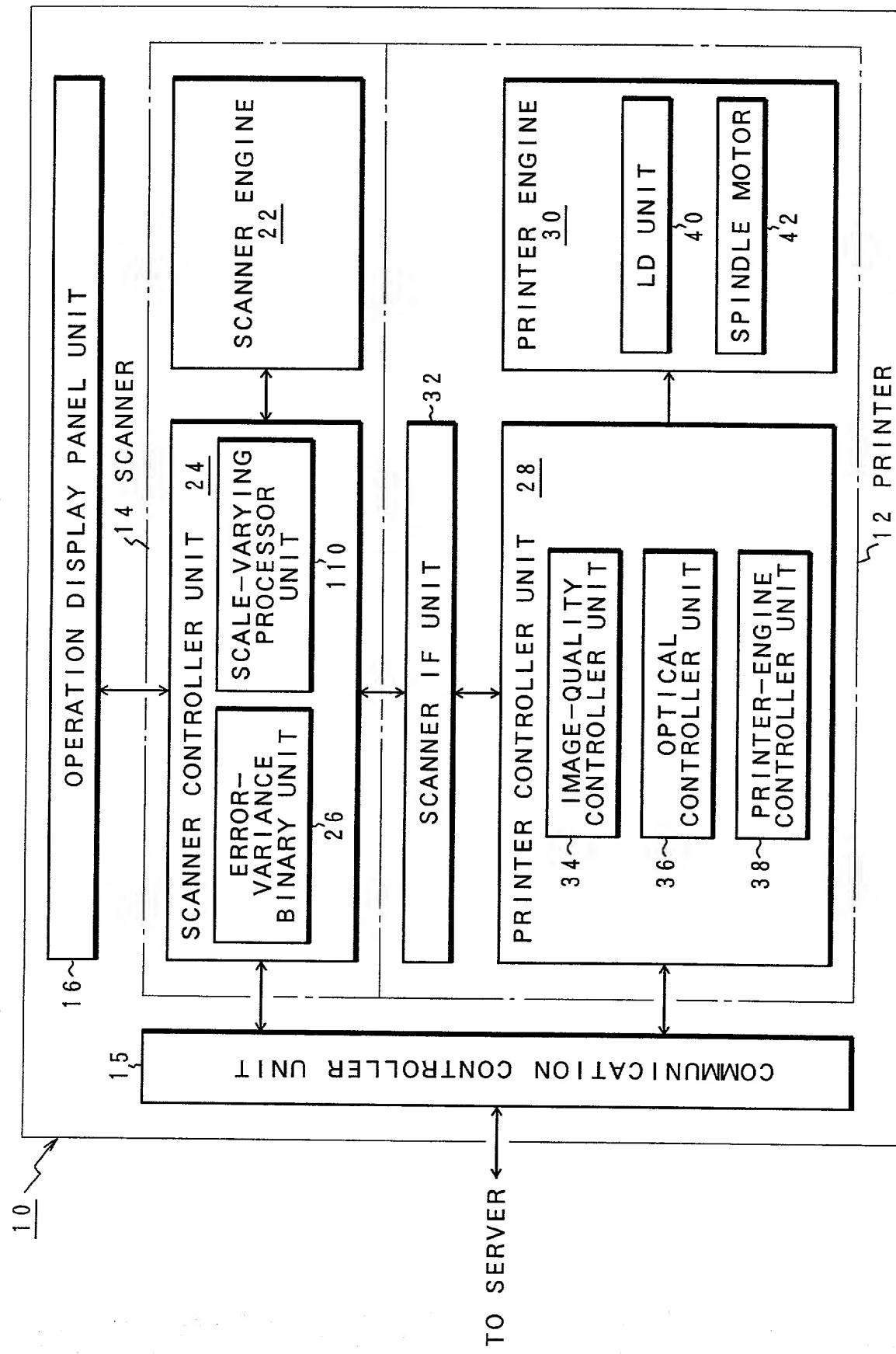


FIG. 62

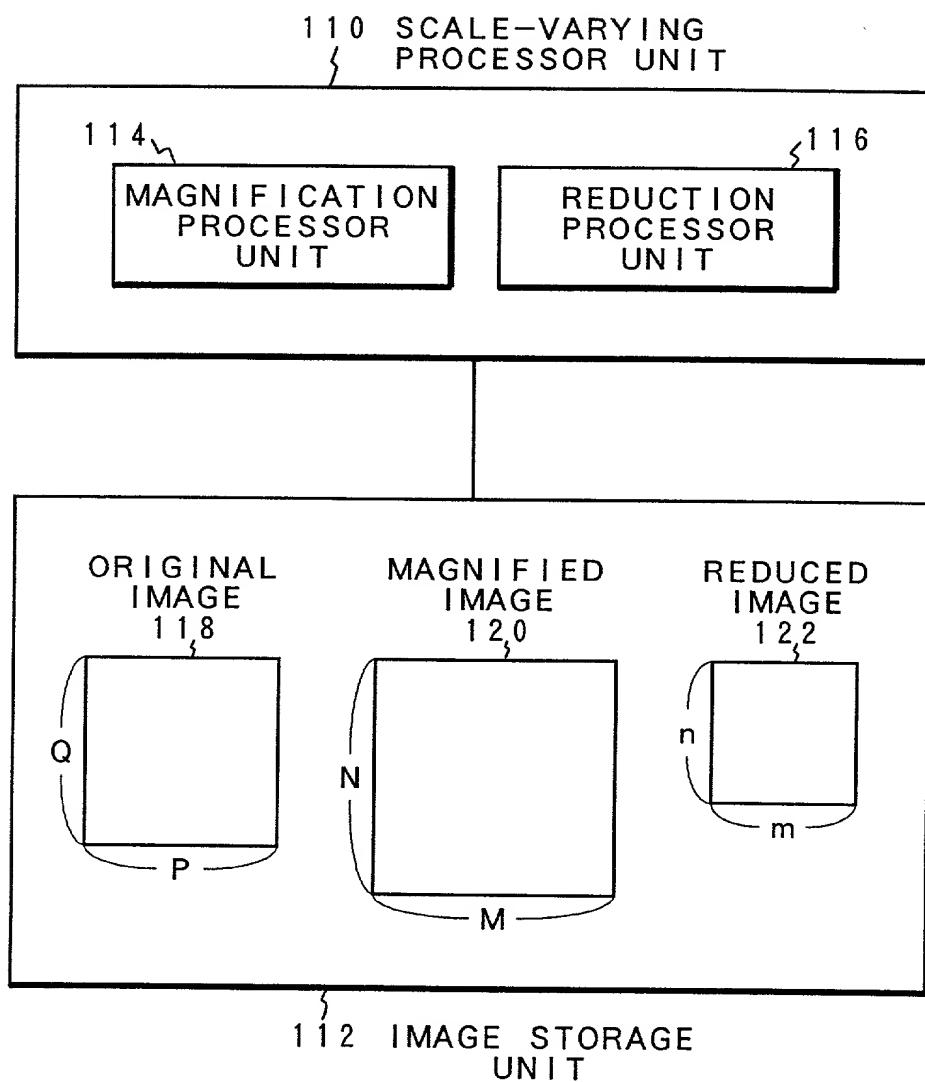


FIG. 63

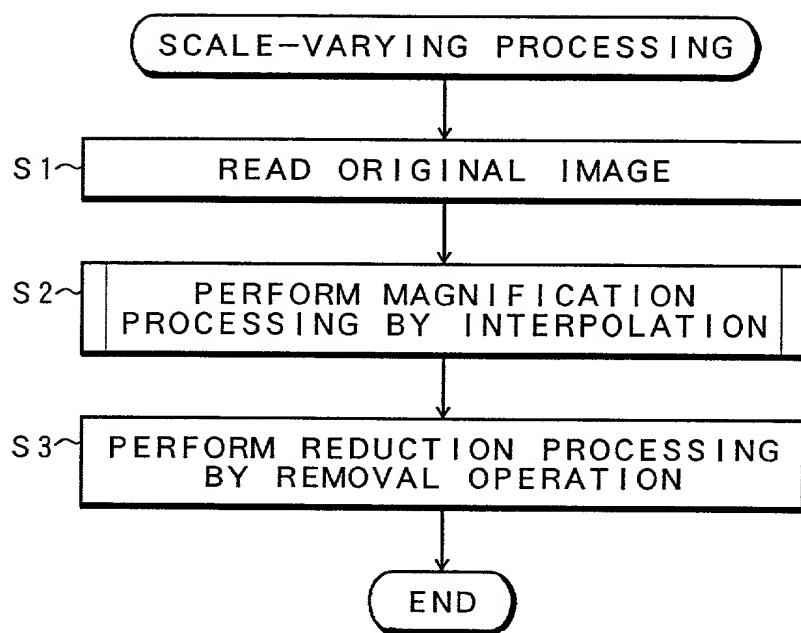


FIG. 64 A

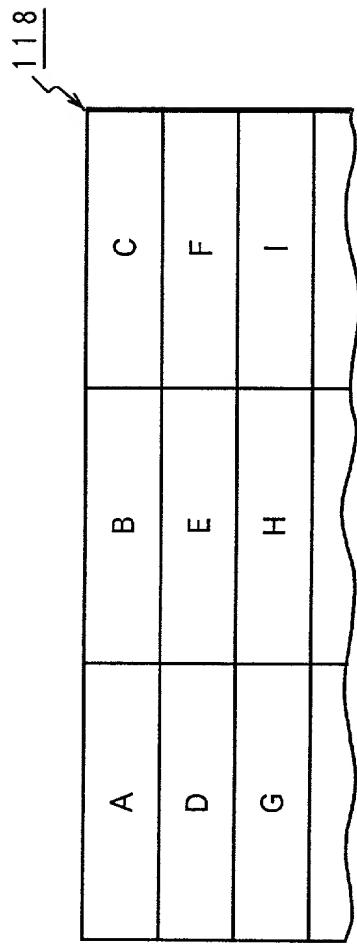
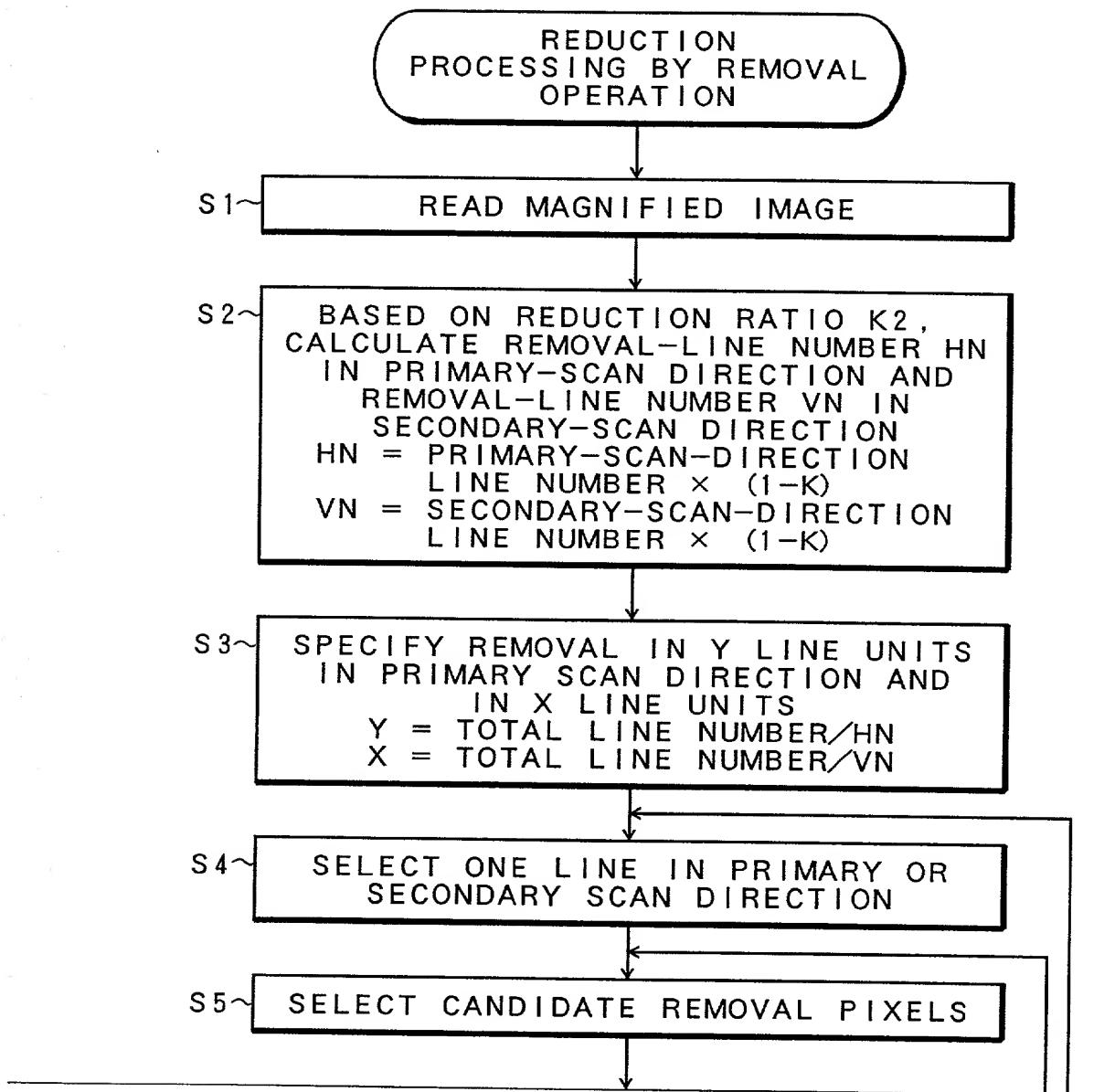


FIG. 64 B

A	$(A+B)/2$	B	$(B+C)/2$	C	C
$(A+B)/2$	$(A+B+C+D)/4$	$(B+C)/2$	$(C+D+E+F)/4$	$(C+F)/2$	$(C+F)/2$
D	$(D+E)/2$	E	$(E+F)/2$	F	F
$(D+G)/2$	$(D+E+G+H)/4$	$(E+H)/2$	$(E+F+H+I)/4$	$(F+I)/2$	$(F+I)/2$
G	$(G+H)/2$	H	$(H+I)/2$	I	I



FIG. 65A



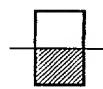


FIG. 65B

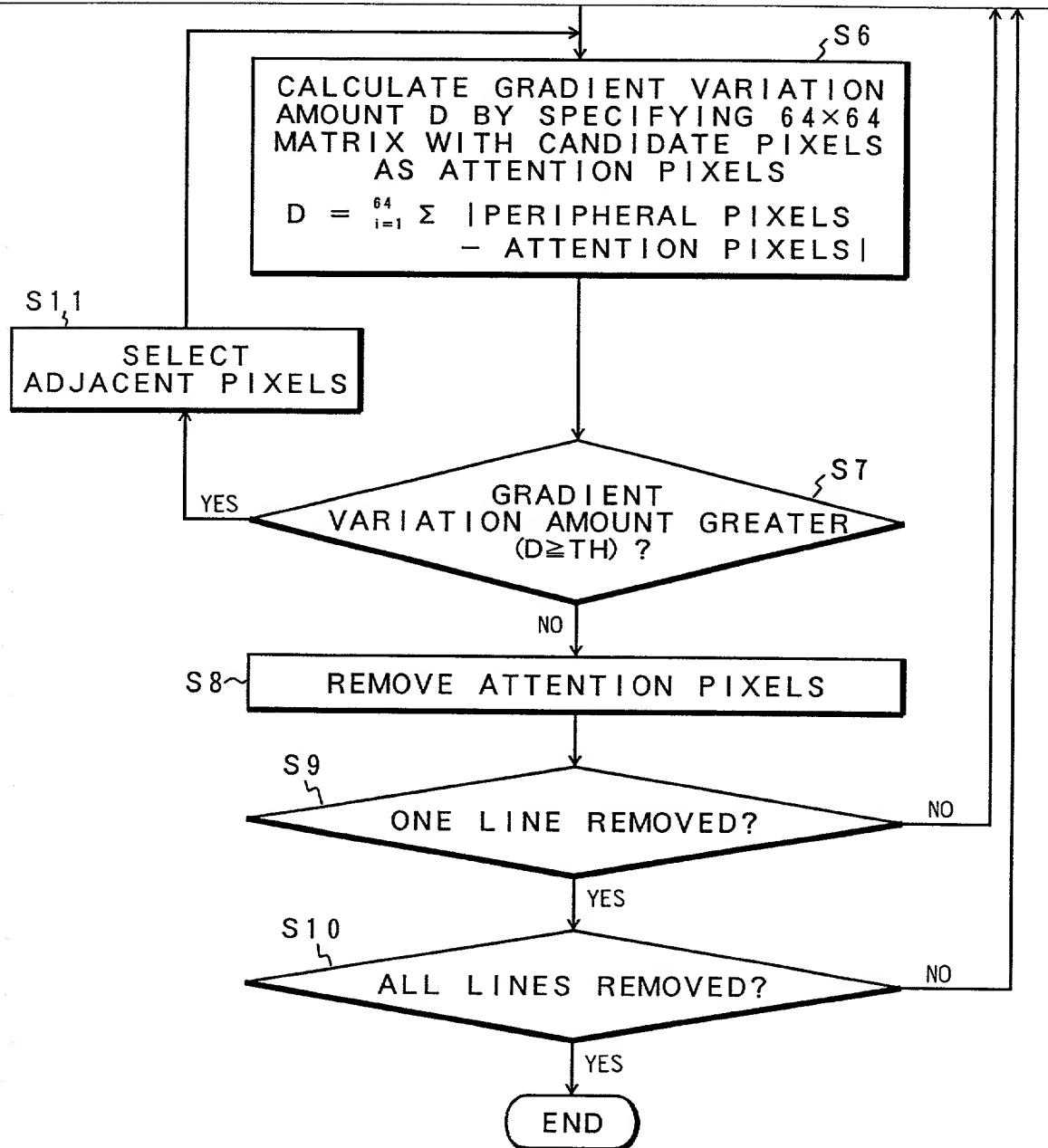


FIG. 66

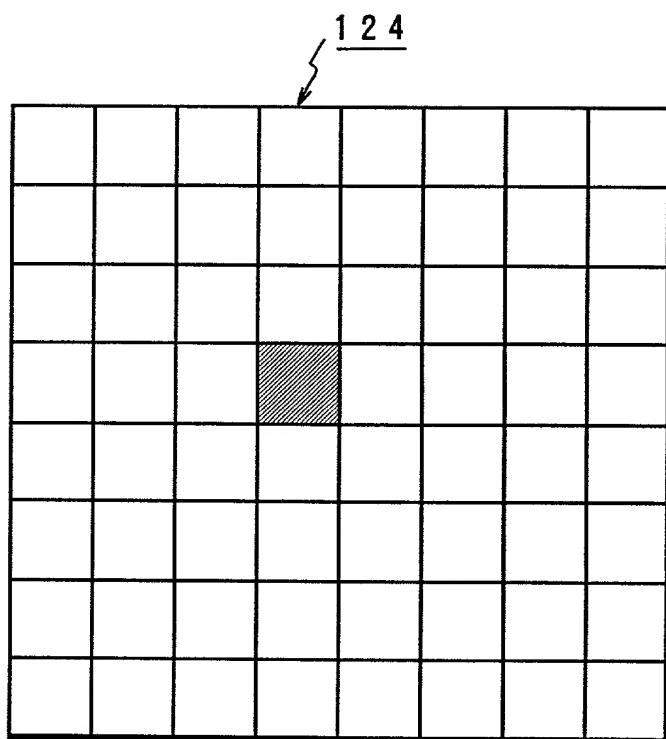


FIG. 67A

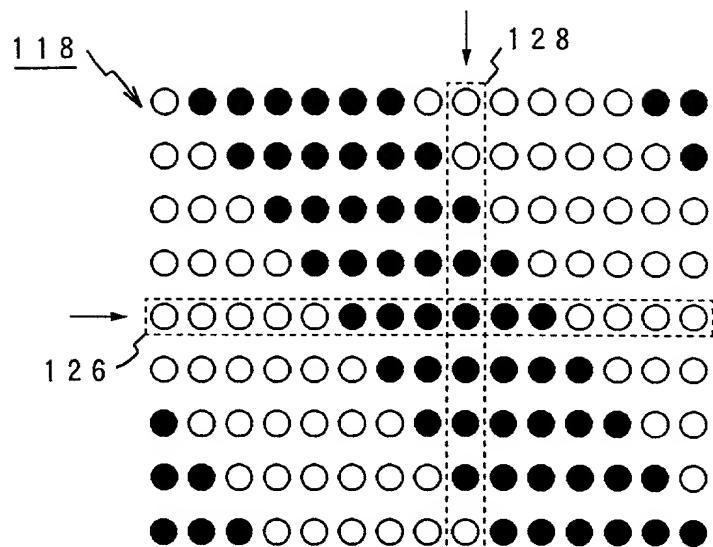


FIG. 67B

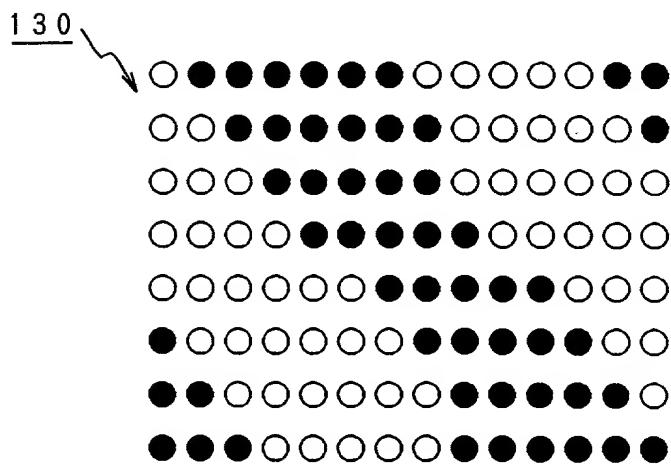


FIG. 67C

